

STRATEGIC BOMBING - A DECISIVE MILITARY FORCE?

**A MONOGRAPH
BY
Colonel Gary E. Phillips
Military Intelligence**



**School of Advanced Military Studies
United States Army Command and General Staff
College
Fort Leavenworth, Kansas**

AY 97-98

Approved for Public Release Distribution is Unlimited

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)

2. REPORT DATE
21 May 1998

3. REPORT TYPE AND DATES COVERED
Monograph

4. TITLE AND SUBTITLE

Strategic Bombing - A Decisive Military Force ?

5. FUNDING NUMBERS

6. AUTHOR(S)

COL Gary E. Phillips, USA

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
School of Advanced Military Studies
Command and General Staff College
Fort Leavenworth, Kansas 66027

8. PERFORMING ORGANIZATION
REPORT NUMBER

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)
Command and General Staff College
Fort Leavenworth, Kansas 66027

10. SPONSORING / MONITORING
AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION / AVAILABILITY STATEMENT

Approved for Public Release;
Distribution is unlimited

12b. DISTRIBUTION CODE

13. ABSTRACT (Maximum 200 words)
SEE ATTACHED

19981221 026

14. SUBJECT TERMS

15. NUMBER OF PAGES

16. PRICE CODE

17. SECURITY CLASSIFICATION
OF REPORT
UNCLASSIFIED

18. SECURITY CLASSIFICATION
OF THIS PAGE
UNCLASSIFIED

19. SECURITY CLASSIFICATION
OF ABSTRACT
UNCLASSIFIED

20. LIMITATION OF ABSTRACT
UNLIMITED

SCHOOL OF ADVANCED MILITARY STUDIES

MONOGRAPH APPROVAL

Colonel Gary E. Phillips

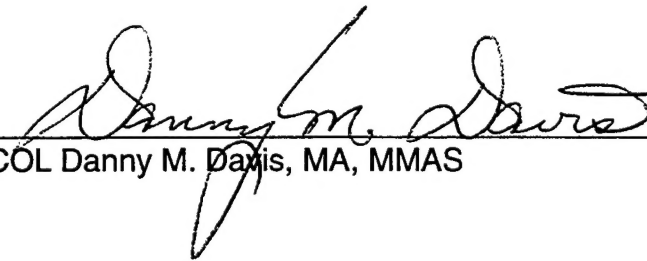
Title of Monograph: *Strategic Bombing - A Decisive Military Force?*

Approved by:



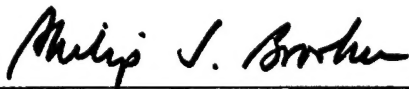
Richard M. Swain, Ph.D.

Monograph Director



COL Danny M. Davis, MA, MMAS

Director, School of Advanced
Military Studies



Philip J. Brookes, Ph.D.

Director, Graduate Degree
Program

Accepted this 21st Day of May 1998

Preface

The following monograph is a circumscribed look at the effects of air power on achieving political objectives. It is no way intended to be a commentary on the relative bravery of airmen compared to soldiers and sailors or an attempt to justify budgetary decisions on defense spending. The nature of the subject implies a competition for primacy between the Army and Air Force. My intent is not to pursue the notion of competition, but to examine the efficacy of an air force using strategic bombing to be "decisive" in the application of military power to achieve political objectives. To accomplish this I have chosen three examples from history that are often touted by airmen as conclusive proof of the decisive nature of air power - the atomic bombing of Japan, the LINEBACKER air operations over Vietnam, and the air campaign for Operation Desert Storm. By comparing the political objectives, the actions of ground and naval forces, and the results of air operations I believe one can begin to determine the parameters of air power's ability to be a decisive military force. The choice of the U.S. Air Force as the only air force to be examined is driven by several factors. First, my readings indicate that the U.S. Air Force has a long history of doctrine and thought that stresses the importance of strategic attack and the ability to achieve national aims through air power. Second, the United States arguably has the most technologically advanced air force in the world. This overwhelming technological advantage plays to our national penchant for imagining war as a system on system event versus a complex social interaction. We want our air force to be decisive - it provides a clean, long distance method to conduct diplomacy by combat.

Based on the foregoing considerations, it appeared to me that by examining the employment and results of U.S. Air Force operations in three limited, distinct historical circumstances one can begin to see the silhouette of air power's ability to be decisive.

Introduction

“For men to plunge headlong into an undertaking of vast change,...they must have the feeling that that by the possession of some potent doctrine, infallible leader, or some new technique they have access to a source of irresistible power”¹

Eric Hoffer from True Believers

The invention of the airplane forever changed mankind's concept of time, distance and national defense. Over the last 90 years, airman of all nations have sought the “Holy Grail” of decisive battle from the air. Members of this relatively new armed force in the array of national defense forces desire an equal place with the Army and the Navy at the military table. The key to obtaining this desired equality of status is to demonstrate an ability to go beyond simply supporting ground and naval operations in pursuing national objectives, to achieving such with airpower alone. Air forces desire recognition as a decisive force unto themselves. Their ability to gain this recognition hinges on the theory of strategic bombing.

The use of air power can be clearly divided into two segments; tactical actions in support of ground or sea forces and strategic bombing. Strategic bombing is an attempt to use air power to devastate the will or the industrial means of a nation. Success in either case could decisively end the conflict. Two underlying themes support notions of strategic bombing. First, the Douhetian idea that if bombing inflicts enough pain on a nation it will abandon its military efforts to achieve a political aim. This concept is focused on destroying the enemy's will to resist. The second, particularly U.S., theme can be called the “domino effect”. By precisely bombing the right strategic targets in the

right order, in a national infrastructure already overstretched by war, the enemy will lose the means to resist. In both cases, air power advocates see strategic bombing as the use of air power alone to achieve decisive results.

World War II provides an example of the combination of the two strategies. The Royal Air Force Bomber Command adopted the Douhetian notion of inflicting pain on the German population. Bomber Command's reaction to high losses as a result of daylight bombing, and public demands to strike back at the Germans, led to a policy of night bombing of cities and "dehousing" German workers.² Major General Ira Eaker, Eighth Air Force Commander and senior American airman in England, stressed, on the other hand, that the Allies had to limit civilian casualties and attack objectives that were key to Axis strategy.³ The Eighth Air Force used daylight bombing raids against specific industrial targets in an attempt to cause the collapse of the overstretched German economic and industrial infrastructure. The purpose was to destroy the German ability to produce additional arms or support the forces in the field. Over time attrition would render German forces unable to continue to fight. These two examples highlight the two fundamental strategic bombing strategies that air power advocates assert will allow air power to be decisive "regardless of what happens on the ground [or sea]."⁴

Strategic bombing is based on three premises; one, that the bombers can accurately access the target set; two, that the destruction of these targets will have certain effects, and three, that political restraints on military force will permit strategic bombing. If any premise is untenable then the whole proposition becomes suspect. The understanding of this triad of preconditions is important in judging the efficacy of

strategic bombing as a stand-alone strategy in achieving political aims. However, the third premise is particularly sensitive because strategic bombing advocates will posit that success merely requires the collapse of a nation's will regardless of actual physical destruction.

The political constraints on attack of a nation's heartland are sometimes the result of the strength of the desire to achieve the political object. Indeed, Clausewitz points out that the intensity and magnitude of a war are directly related to the desire to achieve a political object.⁵ Clausewitz and later Julian Corbett, a noted early twentieth century naval theorist, devote much of their theoretical work to explaining the differences between limited and unlimited war. Corbett, more than Clausewitz, embraces the notion that wars for limited objectives may consume a nation's armed forces, in particular if national honor is involved. These differences become critical in understanding the political constraints that bind or release the use of military force for political reasons. The firebombing of Tokyo in World War II received sanction because of the "unlimited" nature of the conflict. During Desert Storm, the bombing of the Baghdad command and control bunker that resulted in civilian casualties was roundly criticized and caused a dramatic restructuring of target lists.⁶ Desert Storm was a limited war with closely defined political objectives and thus demonstrated that the capability to achieve certain military effects may indeed be limited by political judgments.

In both strategic bombing methods, attack on the will or attack on the means, there is an inherent time delay. Destruction of cities and attendant psychological effects can only be realized as the general population becomes aware of the destruction.

Moreover, reaction to such knowledge may be limited by the social and political conditions in which the population resides. Their latitude for response may be strictly limited. The physical effects on the ability of the armed forces to continue to resist becomes apparent only after resident stockpiles are exhausted. The destruction of oil fields or weapons factories begins to take effect as the attrition of combat exhausts on hand stocks. The measurement of the time delay becomes problematic as one examines Brian Bond's criteria for victory outlined in The Pursuit of Victory. Bond states that victory requires acknowledgment of defeat by the vanquished and timing of surrender opportunities to match battlefield circumstances.⁷ The imprecise effects and time delay intrinsic to strategic bombing may make decision by bombing alone impractical. Air power theorists believe simply that we have not realized the full capability of conquest from the air.

Perhaps the first and certainly the most renowned air theorist, Giulio Douhet, an Italian officer of the first world war, saw immediate use of the airplane as a tool to recapture the glory of the Roman Empire for Italy. He postulated using air power to achieve national objectives by bombing enemies into submission. The use of high explosives, incendiaries and chemical bombs would destroy national population centers, devastate the will of the people and lead to instant capitulation. The Army and the Navy would be the "little brothers" to the independent air force providing protection for airfields and the home front.⁸ Douhet's intense belief in the power of the airplane was echoed by Alexander de Seversky in his book Victory Through Air Power. De Seversky continued the theme that war could be won solely by bombing important enemy areas.

He advocated building a “circum-globular” fleet of aircraft to make direct attacks on adversaries’ homeland resources.⁹ The timelessness of Douhet and de Seversky’s notions for airman is reflected in the 1990’s United States Air Force doctrinal slogan, “Global reach - global power”.

Other military leaders saw the great benefits that militarization of the airplane could bring, usually when applied in conjunction with ground and naval forces as an supplemental force. The organization of the United States Army Air Force and the advent of United States Naval Aviation was a recognition of the capabilities of the airplane to contribute to combat operations of the Army and Navy. However, Douhet’s theories continued to hold sway over the leadership of this new aerial arm. They insisted upon the formation of an independent air force to realize fully the potential of air power. General Billy Mitchell was the most outspoken advocate of an independent air force in the United States in the early years. He was an ardent believer in the promise of air power to fulfill Douhet’s vision. Mitchell succeeded in fostering the argument for establishment of an independent air arm for the United States. His early commitment to air power as a decisive combat force, in conjunction with the work of General Henry “Hap” Arnold and other dedicated air force advocates resulted in the establishment of the United States Air Force in September of 1947.¹⁰

Mitchell has been followed by a number of air power theorists into the late 20th century, notably Colonel John A. Warden and his disciple Colonel David A. Deptula. Their contribution to air power theory involves the notion of parallel warfare, an idea that exploits the ability of air power to strike simultaneously all elements of a nations military,

political and economic structure. As with earlier air power theorists, Warden and Deptula counsel that with patience, more investment in air power, and more freedom to pursue an air campaign, air power will live up to the promises made by Douhet. History indicates that a decision produced by air power alone continues to elude its advocates.

The notion of obtaining a "decision" through combat has been part of man's cultural heritage since the beginning of time. Single combat gave the victor the right to impose his will on the defeated party. As the gregarious nature of man caused the formation of larger social groupings, single combat grew into group combat with the same results. The victorious group imposed their will on the defeated group. The need to organize and direct ever larger social groups in coherent goal oriented behavior resulted in the birth of politics - establishment of group "policies" by the leadership. Politics is derived from the Greek word *polites* meaning citizen, a person who is a member of a social group and owes allegiance to that group.¹¹ The formation of social groups as political entities provided a foundation for linking group goals, national interests, to military activity. Thus the quest for decisive military actions to achieve a national interests can be related to the abstraction of single combat to impose one's will over another. A decisive military action by a political entity, a nation-state, would result in that nation-state being able to impose its will over the defeated political entity. Decisive action forces the opponent to make choices that are in the interests of other nation-states but may be counter to his own goals. The nature of the military action is determined by the political aim.

The smaller penalty you demand from your opponent, the less you can expect him to deny it to you, the less effort you need make yourself. Moreover, the more modest

your own political aim, the less importance you attach to it and the less reluctantly you will abandon it if you must.¹²

The linkage of political objectives to military activities provides an insight into the criteria for decisive military action. To be decisive, a military operation must be the proximate cause for the achievement of a desired political object, within the constraints established by the desirability of the object. A victory more costly than the value of the object is no victory at all. Traditionally, the Army and the Navy provided the military tools for decisive battles. The Army achieved decision by defeating ground forces and occupying territory. The Navy destroyed opposing fleets, controlled sea lines of communications, blockaded ports and supported ground force activities. The invention of the airplane provided another potentially decisive military tool.

World War II provided the first large testing ground for the decisiveness of strategic bombing. Huge armies, navies and air forces spanned the world. They were applied in various combinations and permutations to win the tactical victories linked to achieving the announced political object -- unconditional surrender of Axis forces. Air power played an important role in this effort supporting the Army and Navy as well as conducting the first truly strategic bombing campaigns. After the war the service chiefs were in general agreement that the combination of all arms won the war. General Hap Arnold and General Carl Spaatz were less effusive. Spaatz opined in Life magazine, "There is no useful purpose in refighting these wars as airman might have wished to fight them."¹³ He and other airmen felt that in particular that the atomic bombs dropped on Japan were the decisive act that drove Japan to unconditional surrender.

During Vietnam, the United States forgot the lessons of operational art and entered into war of attrition with an intensely ideologically motivated enemy; historically a bad combination. As the United States is wont to do, the political and military leadership placed faith in technological advantages, in particular our command of the air to produce victory. The U.S. political object in Vietnam was uncertain from the beginning. Publicly the war was defined as an effort to combat the spread of communism. Vietnam was seen as the first of the "dominoes" in Asia whose fall would lead to communist domination of the entire region. In the early 1970's the U.S. political object was transformed into the more pragmatic, "peace with honor." In pursuit of this political object the U.S. initiated the 1972 LINEBACKER bombing campaign to force the North Vietnamese to the negotiating table for discussions on ending the war. After the peace treaty was agreed to, United States officials attributed the LINEBACKER bombing effort as the decisive act that allowed the achievement of peace with honor.¹⁴

In 1991, Saddam Hussein used the Iraqi armed forces to overwhelm Kuwait and forcibly acquire what he characterized as an errant province of Iraq. Appalled by this display of force, and under pressure from the industrialized world, the United Nations passed several resolutions condemning this action. Two political motivations prompted these resolutions, first, the countries in the region were concerned that Saddam's actions upset the balance of power in the region and could lead to more land grabs in the area. Second, the industrialized world was simply not comfortable with Saddam Hussein in control of Kuwaiti oil reserves and dominating the region's other oil producers. The Kuwaitis had always been slightly more westernized than the bulk of the Arab world and

in some cases had acted contrary to the Oil and Petroleum Exporting Countries (OPEC) oil cartel, benefiting industrialized nations. The resolutions initially called for economic sanctions. These were followed by calls for forcible ejection of Iraqi forces from Kuwait under Chapter VII of the United Nations charter. The declared political object was the ejection of Iraqi forces and the restoration of Kuwaiti sovereignty. In February 1991, the forcible ejection began with the Coalition forces' air campaign against Iraq. Over 40,000 air to ground sorties were flown by over 1600 aircraft in the 38 days of the air campaign. The Gulf War Air Power Summary states the use of air power transformed the conduct of war and that "an operational threshold" may have been crossed that will forever change the relationship of ground and air forces.¹⁵ United States Air Force leadership is less bashful about claiming the decisive effect of air power. COL (ret) John A. Warden III, an original planner for Desert Storm air operations stated on the Public Broadcasting Service (PBS) series "Air Power", that "the Gulf War ended 30 seconds after the first coalition aircraft crossed the Iraqi border."¹⁶

Was strategic bombing the proximate cause for achievement of our political objectives over Japan, North Vietnam and Iraq ? Douhet and his latter day disciples fervently believe that to be the case. The followers of Mahan and Clausewitz deny air power's claim to the throne of decision. In the following pages we will examine the theories of air power, the concept of the decision, and look at the historical record for insights. At the end, we will examine the historical evidence and determine if any similarities exist between the historical examples that could have implications for future use of strategic bombing as a tool of policy.

SECTION I Air Power and Decision Theory

"Nothing a man can do on earth can interfere with a plane in flight"¹⁷

Giulio Douhet

"We were a different breed of cat right from the start. We flew through the air while others walked on the ground"¹⁸

Carl Spaatz

The common component of all air power theory is the mystical properties assigned by airmen to aircraft and the effects of air power. Perhaps this is a result of the plethora of legends, myths and religious writings that attribute the ability to fly to supernatural entities. From the gods of Greek mythology to the angels of the Christian religion, flight has been viewed as something extraordinary and removed from such pedestrian affairs as ground or sea movement. This fascination with and glorification of flight as a panacea that resolves any problem provides a common thread through air power theory from Douhet through Warden. One can rarely find an air power theorist who provides an objective and dispassionate look at the capabilities and limitations of air power. The notion of lightning from the sky, destroying and intimidating those timid souls bound to the earth's surface, seems an irresistible metaphor for air power advocates through the ages, particularly relative to strategic bombing. Sitting Zeus-like in their winged war machines these advocates claim all manner of superiority over other types of forces. The following paragraphs capture the basics of airpower theory, a brief look at the remarkable continuity of this theory in United States Air Force doctrine and a working definition for "decision".

Early Air Power Theorists

Giulio Douhet, an Italian military officer, viewed the airplane as an opportunity for Italy to gain prominence as a world power. The geography of Italy would allow a small army to secure the northern border and an equally small navy to secure the adjacent ocean areas. The purpose of these forces would be to “resist” until air power could win a decisive victory. Air power would win by attack of the civilian populace of enemy nations. By bombing cities and industrial areas with a combination of high explosives, incendiary and chemical munitions, the people’s will to resist would collapse. Douhet acknowledged no distinction between soldiers and civilians in war. The industrial rear, the war production base, and the fighting front were all legitimate targets for Douhet’s total war. In fact, he argued that the bombing of civilian targets might end the war more quickly for civilians are not inured to hardship like soldiers.¹⁹ Douhet’s prescriptions equate command of the air to national survival as well as national greatness. This demands an independent air force, resourced and organized as the primary military arm of the nation. The independent air arm would first win command of the air, defined as “flying in the face of the enemy”²⁰ when he cannot do the same to you. After achieving command of the air, a nation can exploit that command by destroying enemy materiel and crushing his moral resistance. The combination of these facts would result in “victory, regardless of what happens on the ground.”²¹

Douhet’s book, Command of the Air, published in 1921, continues in the same vein, describing in simple mathematical terms the expected physical effects of explosives delivered from the air and the implications on the design of air organizations and aircraft.

Douhet's notion of air organization includes the abandonment of air units that are subordinated to the army and navy. He characterized this as auxiliary air and a waste of resources. Any aircraft not centrally controlled by the independent air force and dedicated to achieving command of the air are unnecessary.²²

After sorting through the bombast and passion, three basic principles of air power can be derived from Douhet's writings. First, command of the air provides immeasurable benefits for a nation. Second, an independent air force is necessary to achieve command of the air. Finally, air power allows one to avoid fighting the front line forces and forward defenses of a nation and permits direct thrusts at the national "jugular" vein -- the will of the populace.

Alexander P. de Seversky followed Douhet with the 1942 publication of his book Victory Through Air Power. He was unapologetically an air power zealot. Seversky notes,

The displacement will come when everyone finally recognizes airpower is the key to victory in modern war, with land and sea forces in distinctly auxiliary and follow-up roles...Our task is hold the enemy on land and sea with minimal forces to conserve our resources and to channel our main energies and economic wealth for massing air for a decisive all-out offensive.²³

It is clear that Seversky argues that war can be won solely from the air by bombing important enemy targets. In his book, Seversky denies the historical evidence already available to him from World War II. He concludes that the Germans use of aircraft in support of ground forces squandered resources better used in building long range bombers. Seversky also explains away the Battle of Britain as an example of strategic bombing failing to achieve decision. He concludes again that the German failure

to employ long range bombers to strike “important” targets in England led to the failure of the bombing strategy. Implicit in his explanation is that London, the capital of England, was an unimportant target in the battle to break the will of the English people. Seversky argues, based on his examination of history, that wars are most easily and quickly won by a long range air fleet of bombers. These bombers can make direct attacks against a nation's heartland and industrial bases. To Seversky this is the logical adaptation of technology to war. Mankind is past the need for hand to hand combat.²⁴ The sling, bow, musket, cannon and now the airplane allow killing of the enemy at a distance.

Examining Seversky's theory of air power three more ideas come forth. First is the notion that ground and sea forces are completely auxiliary to air power. He takes Douhet's concept of army and navy as “little brothers” to the air force to its logical extreme. Second, a Seversky designed air force will have global reach. His fleets of circum-globular aircraft allow the exercise of air power diplomacy anywhere national interests are involved. Third, in his discussion of the growth of weapons one sees the embryonic idea of long range missiles and precision guided munitions. Destroying enemy forces beyond the distance of human vision and precisely striking important areas are key elements of Seversky's theory on victory through air power.

America's Contribution to Air Power Theory

One of the first influential American air power theorists was William (Billy) Mitchell. In the 1920's he proclaimed loudly that the airplane would replace the fleet as the front line of America's defense. Mitchell participated in World War I as a pilot,

aviation operations planner and commander. His experiences with the airplane in combat began a lifelong advocacy of the potential for air power. Mitchell shared Douhet's ideas about the efficiency of air attack on the enemy's economic and national infrastructure.

In the future the mere threat of bombing a town by an air force will cause it to be evacuated, and all work in the factories stopped. To gain a lasting victory in war, the hostile nation's power to make war must be destroyed...Aircraft operating in the heart of an enemy's country will accomplish this object in an incredibly short time.²⁵

Mitchell's writings continue to emphasize the fact that the airplane can go straight to a country's "vital centers" and destroy or neutralize them. He is emphatic that air power can bring about quick decisions and that superior air power makes the notion of long campaigns obsolete. Mitchell also sought to prove that air power obviated the need for overwhelming naval forces. He understood the geographical position of the United States and the nation's consequent fascination with naval forces. In his efforts to wrest primacy (and funding) from the navy he went to great lengths to prove the efficacy of air power over naval forces. This included outright dishonesty in the test of aerial bombing on the moored destroyer *Ostfriesland* in 1921.²⁶

In his initial writings Mitchell devoted time to elaborating on the idea of ground and air forces working together. His later writings placed air power in the predominate role as the decisive force in achieving national aims. Ground forces provided a constabulary to protect airfields and occupy countries conquered from the air.²⁷ Mitchell agreed completely with Seversky on the necessity for a country to have global reach with air power. He argued endlessly for the development of transatlantic air routes over Greenland and Iceland and the development of routes to Asia over Alaska and the Kurile

Islands. Mitchell's increasingly strident calls for an independent air force with global capability reached a crescendo immediately before his court martial. Mitchell, using the press, accused the national leadership of criminal negligence in not exploiting the capabilities of air power. He was convicted at court martial in 1925 and spent the rest of his life in relative obscurity seeking vindication.²⁸

All of Mitchell's musing about air power follow the line established by Douhet and Seversky. Air power must be centrally controlled - independent air force - and used to bomb vital areas in the heart of the enemy's country. As Sherman described the purpose of his march to the sea during the Civil War, the civilian populace must feel the "hard hand of war."²⁹ Using air power in this fashion would devastate the will of the nation to continue the conflict and allow a quick decision.

Henry "Hap" Arnold was a protégée of Billy Mitchell. During World War II Arnold sat as an equal on the Joint Chiefs Staff. He was responsible for planning and executing American air strategy in the theaters of war. His imaginative employment of air power was a critical element in the post war decision to establish an independent United States Air Force and the expansion of the Air Force to encompass a global mission. Arnold wanted to make sure that the Army Air Force (AAF) made the largest possible contribution to winning the war and received public credit for it. He privately advocated bombing civilians to cause them to demand that their government stop the war. In his view strategic bombing had been given short shrift by the American public. Arnold demanded that his field commanders produce results with attendant publicity so he could educate the American people on the effect of air power on the outcome of the war.³⁰

Arnold's pressure on field commanders to produce dramatic results drove the decision to begin firebombing Japanese cities. The photographs of the results of firebombing provided a graphic visual of the effects of air power.³¹ Arnold believed that air power in the form of strategic bombing was the "most humane of all weapons" because it could end a war quickly and cost fewer lives.³² His notion ignored the traditional distinction between targeting combatants and noncombatants in hope of sparing the latter the immediate effects of Sherman's "hard hand of war." The title of Flint O. Dupre's biography of Arnold, Hap Arnold: Architect of American Air Power, captures his importance as the father of American implementation of air power theory.

Although there have been a large number of influential airmen between Hap Arnold and the late 20th century, none have changed materially the air power concepts espoused by Douhet, Seversky and Mitchell. Most were content to continue to expand the United States Air Force in an effort to realize the potential promised by the early air power theorists. However recently, Colonel John A. Warden III was catapulted to fame by his involvement in the planning of air operations for Desert Storm. He had written his theories earlier in his 1988 National Defense University book, The Air Campaign-Planning for Combat. This book codified and rationalized a system of planning for operational air campaigns. Warden divided air operations into the following components, air superiority, air interdiction and close air support, in order of priority. Warden speculated that if done properly, and in the order prescribed, the enemy would surrender and air power would have achieved a strategic and operational decision. Ground and naval forces might still be necessary, but only in small proportions to the air forces.³³

As in naval strategy, Warden declares that the first and primary element of all air operations is seizing command of the medium. Command of the air is absolutely essential.

Since the German attack on Poland in 1939, no country has won a war in the face of air superiority, no major offense has succeeded against an opponent who controlled the air, and not defense has sustained itself against an enemy that has air superiority.³⁴

Warden's next element of air campaign planning is interdiction. He divides interdiction into distant, intermediate and close. Distant interdiction (read strategic bombing) receives the credit as a decisive method of using air power in spite of the often long delay between attack and results. Warden continues, "Interdiction is a powerful tool in the hands of the joint and air commander, a tool he can use as part of a potentially warwinning campaign -distant interdiction against the source..."³⁵ By attacking the warmaking potential of a nation, air interdiction leads inevitably to the strategic defeat of the enemy.

Warden's final component of air campaign planning is close air support. He defines close air support as air power doing the things a ground commander would do if he could. For example using close air support to make up for a shortage of artillery or providing reconnaissance of areas out of range of ground based reconnaissance systems. Warden's general thrust is that close air support wastes valuable air power resources that could be used in the air interdiction campaign. His thesis is that, if air interdiction is conducted correctly, there will be no need for close air support. Air interdiction will prohibit the enemy from arriving on the battlefield in sufficient strength to challenge

ground forces. If air interdiction is properly planned and executed with sufficient resources, the enemy nation will surrender, negating any need for a ground attack.³⁶

Warden's theoretical writings have expanded to include air attack of the enemy by considering the enemy as an interdependent system. The logical outgrowth of this idea is parallel warfare - the simultaneous attack of multiple elements in the system to cause systemic collapse. Thinking of the enemy as a system allows one to rationalize attack options with desired effects. In his article, "The Enemy as a System," Warden applies a distinctly organic model to capture the concept of the modern nation state. His five rings are illustrated in figure 1.

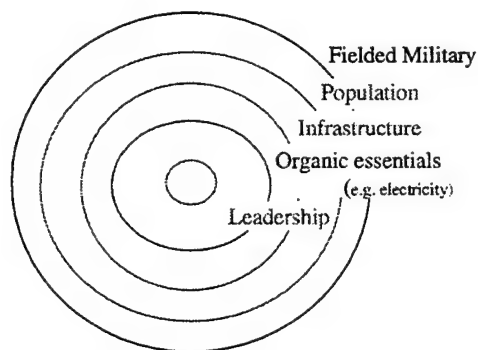


Figure 1 Warden's Five Rings Concept

Warden's theory explains that if one examines an enemy as a system vulnerabilities become apparent. He notes particularly the apparent primacy and vulnerability of the center ring, national leadership. Warden observes that each of these rings are guided by human leaders and that national leaders determine the objectives of their country. Therefore, if we want to affect a national entity's choice of objectives, we

must affect the national leadership. From this observation springs Warden's major contribution to 20th century air power theory, the notion of decapitation of an enemy nation by destruction of the national leadership using air power. Air power will attack the national telecommunications structure and centers of leadership. These attacks will paralyze the nation and affect national decision makers' perception of options and available choices. Attack on the other rings is appropriate only as they affect the pressure on national leadership. In Warden's view the least effective strategy is attack of fielded forces to get to the other rings. Of course air power is the only military tool that allows attack of the inner ring from the beginning of the conflict. In the tradition of all of the foregoing air power theorists, Warden has developed another theory of the enemy that emphasizes the capabilities of air power while ignoring any limitations.³⁷

Air Power Doctrine - the Bridge Between Theory and Practice

Theory is at best an approximation of relationships encountered in reality. To translate military theory, a skeleton of ideas, into action one needs the muscle of doctrine. Doctrine translates the sometimes obscure concepts found in theoretical descriptions of the military operations to activity. Doctrine melds history, culture, technology and theory into a amalgam unique to a armed force for a particular time. Some say that doctrine is the distilled wisdom of combat derived from historical study. The historical component of doctrine is indeed critical. It provides the base for measurement against other possible doctrines. However the use of history to justify the choice of doctrinal precepts rather than as a test of doctrine may lead to the molding of the war to the "weapon" and not the

“weapon” to the war. In any event, doctrine, which is designed for future use, must always extrapolate from experience.

Prior to World War I, the embryonic air forces of the United States viewed doctrine through the traditional eyes of Clausewitz. Early doctrine writers focused on destruction of the enemy army as the positive aim of war, followed by occupation of the enemy’s country. The First World War changed the face of Air Force doctrine forever. In consonance with naval theorists, Mahan and Corbett, and banker Jean de Bloch airmen began to view war primarily as an economic struggle. Billy Mitchell emerged from World War I convinced that attack of the means of production of a nation would tear the economic fabric of the nation and shatter national will. He believed that the air was major sphere of conflict and that sea and land could be disregarded. Mitchell said, “the influence of air power on the ability of one nation to impress its will on another in an armed contest will be decisive.”³⁸ Mitchell declared the armed forces of a nation to be a false target.

The 1941 Air Corps Tactical School (ACTS) air power doctrine lectures focused on five key elements; attack of enemy forces, indirect attack on enemy forces by destroying defense industry, direct attack on social and economic systems, direct attack on social and political centers, and strategic defense against air attack.³⁹ It is apparent in these missions that the subordination of the air elements to the Army was considered in this mission list. The 1942 edition of Field Manual 1-5, stated, “air operations beyond the sphere of action of the surface forces were undertaken only in furtherance of the strategic plan of the field forces.”⁴⁰

This continuing subordination to the needs of the land component continued to vex the air power leadership. Many honestly viewed this as an parochial land force argument that ignored the potential of air power. The deadlock was broken when the War Department issued Field Manual 100-20 in July, 1943. It described the Air Force and Army as co-equal. The manual went further and described the "aim of the strategic air forces was *the defeat of the enemy nation* with objectives found in the vital centers of the enemy's lines of communications and important establishments in the economic system of the hostile country."⁴¹ (emphasis added)

Immediately after World War II, the military chiefs and civilian leadership viewed the war's successful conclusion as the result of skillful integration of all services. General Carl Spaatz disagreed. In his view the Air Force had been tied to supporting the Army and Navy. If the Air Force had been allowed to pursue strategic objectives without political restraint, the result would have been the same, defeat of the Axis, but at less cost in men and resources.⁴² The World War II air power surveys of Europe and the Pacific were used by Arnold, Spaatz, and other airmen to justify this claim.⁴³

In 1953 Air Force Manual 1-2 was written with three assumptions; the Air Force will likely be the dominant force in any future war, the Air Force must maintain an instant readiness to respond, and attack against selected targets will surely cause national collapse and surrender. The histories of air power "successes" and "decisiveness" in the Air Power Surveys, and the advent of the atomic bomb, provided the appearance of proof for this doctrine.⁴⁴ Atomic weapons allowed annihilation of entire cities, countries and populations. The "ultimate weapon" negated much of Air Force doctrine about precision

bombing but it provided a vehicle to justify enormous expansion of the Air Force and ensure service domination by the Strategic Air Command for over 35 years.

Air Force basic doctrine manuals published from 1971 through 1984 continued in the same theme but were largely ignored by an Air Force engaged in Vietnam. Vietnam was an intractable problem for the Air Force. The lack of a defined industrial base, and the apparent ease with which the North Vietnamese resupplied their forces in spite of air attack, frustrated air power advocates. Many advocates, notably General Curtis LeMay, protested that political restrictions “handcuffed” the Air Force and prohibited realization of its full potential. Lemay would have been better served to read Clausewitz and understand the relationship between the political object and the military mission. Lemay proclaimed that “bombing the Vietnamese back to the stone age” could be done in ten days if air power was unleashed. Stanley Karnow in his book, Vietnam, A History wonders why it would take so long. In Karnow’s opinion, the North Vietnamese were not far advanced from Neanderthal living conditions.⁴⁵ Air Force doctrine that concentrated on the destruction of the national infrastructure was found to be inadequate for the task at hand. Institutional historians provided an answer to support a fundamentally flawed strategic bombing doctrine. The LINEBACKER II strategic bombing campaign was described as the decisive military action that brought Hanoi to the Paris peace table.⁴⁶

AFM 1-1 published in 1982 continued to emphasize the speed, flexibility and range of air power over any other military elements. Strategic attack was deemed as vital and providing decisive advantage. This manual does discuss cooperation with ground and naval forces but also devotes several paragraphs to describing the ability of the Air

Force to conduct independent operations. The 1997 version continues in much the same vein. It does, however, begin to discuss the details of joint operations, insuring that it is repeatedly stated that the Air Force can complement, support or be supported by the other military components. Lest one think that the authors of this manual have finally cast aside the parochialism of air power, Chapter 2, "The Airman's Perspective," provides some interesting insights.

The airplane is the only weapon which can engage with equal faculty, land, sea and other forces.... Two dimensional surface warfare concepts and doctrine still dominate military thinking. If air and space power is to reach its full potential, airmen must reexamine all aspects of warfare from the multidimensional...air and space perspective.⁴⁷

Unifying Threads of Air Power Doctrine

In the 1930's the Air Corps Air Tactical School (ACTS) taught a doctrine of achieving victory by attacking the industrial web of a country. By striking the "right" targets, the economy would collapse and the will of the people would be shattered.⁴⁸ In all of the ACTS lectures, the will of the people, vice the fielded forces, were identified as the proper target for air forces. These concepts have remarkable resonance with Warden's Five Rings and his idea of decapitation as the method of destroying the will to resist.

In the years between World War I and World War II the US Army Air Corps leadership moved to implement the recommendations of the Strategic Bombing Survey (and Douhet) and establish a separate but equal military arm. To justify the cost of a new armed service, air power strategy had to be molded to satisfy three imperatives;

- a. That air power can achieve political objectives cheaply while other services can achieve them only at great cost.
- b. That air power is more efficient at achieving political objectives.
- c. Air power can be effective against naval forces, so U.S. geography (oceans on two flanks) does not require continued maintenance of large naval forces.⁴⁹

An examination of air power theory clearly shows the continuity of these arguments throughout the history of the United States Air Force. All air power theorists emphasize the fact that air power can leap over defenses to strike at the heart of the enemy nation. This obviates the need for a serial ground or naval campaign; fighting through the fielded forces with the potential for great losses -- air power is cheap. Air power's great flexibility and speed allow a nation to threaten, intimidate or punish opponents as a method of achieving political objectives. Ground and land forces require time for positioning and time to realize victory to achieve political objectives -- air power is efficient. Air power can attack and defeat naval forces, Mitchell devoted much of his energy attempting to prove this fact -- to the point of cheating on tests of aircraft versus ships.⁵⁰ These critical points have served as the basis for U.S. Air Force doctrine and strategy from the 1930's to the present. The implication is that air power must be decisive without assistance, or a large part of the argument for an independent air force capable of strategic bombing becomes irrelevant. If the argument is invalid, and strategic bombing is not decisive, then subsidizing the continuing growth of our capability for strategic bombing over other capabilities is a bankrupt national defense strategy.

Looking back over the foregoing, some very clear unifying threads of air power theory and doctrine are obvious. First, strategic bombing is always more important than tactical bombing. Strategic bombing is targeted on the civilian populace, the national infrastructure and national leadership. Air power theorists are convinced that this will lead to a breakdown of the enemy's will to continue the conflict and lead to a decisive victory. Tactical bombing against fielded military forces is a waste of resources. It cannot lead to a decisive victory by airpower. Air power gives a nation the capability to leap over enemy defenses and attack the heart of the country. To exploit this great advantage one must possess an independent air force controlled centrally by airman. Ground and naval forces can serve a purpose as an adjunct to the air forces. Their purpose is to resist until air power can take effect and occupy after the surrender if occupation is necessary. The centerpiece of all of the air theory and doctrine is the inherent tie between an independent air force and strategic bombing. Without the justification of strategic bombing, there is no need for an independent air force.

Key to understanding whether the claims of air power advocates can be substantiated is a working understanding of the concept of decisiveness and decision

Decision

Decide: arrive at a solution that ends uncertainty or dispute, to bring to a definitive end, to induce to come to a choice, to make a choice or a judgment.

Decision: determination arrived at after consideration.

Decisive: having the power or quality of deciding, conclusive.⁵¹

Decision is about making choices. Nations make choices based on national interests. National interests may range from satisfying the needs of the majority to creating conditions for a government to remain in power. A nation contented with its

place in the world order desires to maintain the status quo. A discontented nation wants to change the status quo. This tension between the “haves” and the “have nots” is often the source of international conflict. Alfred Thayer Mahan, in his book The Influence of Seapower on History 1600-1783, states that acquiring a disproportionate share of the world's wealth for ones own people is the driving national interest for most countries.⁵² Donald Kagan, in his book, On the Origins of War, quotes Thuycidides opining that nations go to war over honor, fear and interests.⁵³ In any case, conflict results from choices made in the pursuit of national goals.

Choices available to a nation are influenced by other nations with the classic elements of national power; diplomacy, economics, and military power. If the use of these elements of power can force a nation to make a certain choice, in particular choices that may be contrary to that nation's interests, then it follows that that power was decisive. The exercise of national power forced a decision or choice that otherwise may not have been made. For example, a nation wishes to expand its territorial limits. The neighboring countries oppose that action through economic sanctions. The expanding nation gives up its desire for expansion because of the negative effect of economic sanctions on other perhaps more important national interests. In this theoretical case, economic sanctions were decisive. The sanctions forced a choice -- desirable from one point of view but contrary to national interests from another.

National interests, goals or objectives are very seldom unconstrained. The boundaries of common sense, international law, national capabilities and many other

elements limit national objectives. Classic military theorists note the differences between use of military force for limited objectives and unlimited war. Clausewitz notes,

Not every war need be fought until one side collapses. When the motives and tensions for war are slight we can imagine that the very faintest prospect of defeat might be enough to cause one side to yield... Since war is not a senseless act of passion but is controlled by its political object, the value of the object must determine the sacrifices to be made for it in magnitude and also duration.⁵⁴

Julian S. Corbett, a naval theorist, described unlimited war as war that required one to crush the enemy opposition completely to be decisive. Unlimited war implies that the object is of such immense value that decision is only reached when one nation is helpless before the other. Corbett noted that limited war does not require destruction of the enemy's armed forces. In limited war simply raising the cost for achieving an object of minor value may cause a nation to forgo the effort. The classification of war as limited or unlimited has important strategic implications. Clearly operations of an unlimited war should be directed against the opposing armed forces. If the value of the object is great, resistance will continue as long as armed forces exist. Limited war need not be directed against the armed forces. With proper conditions, military force can be directed against the object. For example, success may be achieved if one can seize an object and, through defensive measures, make the cost of restoring the previous status quo unreasonable.⁵⁵ The value of the final object to the nations involved defines the proper strategy for achieving that object.

Nations chose military power for achieving political objects because it seems to promise a decision with a "quickness and dispatch that would keep the costs of war reasonably proportionate to the purposes attained."⁵⁶ The destruction of an opponent's

army leaves the country undefended and opens it to devastation. Accepting the political choices desired by the victor would appear to be the only avenue open to a defeated nation. During the Napoleonic wars of the 18th century, the economic, social and technological conditions allowed the consolidation of tens of thousands of soldiers into armies intent on fighting a decisive battle. The purpose was to achieve the political object quickly by defeating the defending military and forcing a choice – a decision -- on the opponent. The sheer size and resilience of the armies of Napoleon and his adversaries ultimately played directly counter to that notion. Rather than leading to a quick decision, the large more modern armies led to longer wars with increased costs in life and national treasure. Decision became impossible, as the nation's armed forces were not able to achieve a uniform victory across the broad front. From this demise military theorists began to postulate new methods of obtaining a decision.⁵⁷

First the German military theorists, and later the Russians, recognized the need to overcome the stalemate brought on by the massive size of national armies overlaid with continuing advances in technology of movement and lethality. Decision could no longer be reached by a single battle, but an aggregation of a number of tactical successes, properly exploited, could lead to victory. The idea of interposing the concept of “operations” between strategy and tactics was a result of the need to merge simultaneous and sequential tactical events into a seamless path to the decision -- achievement of a political object by military might. The birth of the concept of operations and operational art brought the decision again within the reach of the military forces.⁵⁸ Initially the American Civil War, and later World War II, provided the testing grounds for the new

concept of operations and operational art linking tactical successes to strategic goals. Huge armies, navies and air forces spanned the world applied in various combinations and permutations to win the tactical victories linked to achieving the announced political object.

Levels of Decision

Battles can be decisive in the three levels of war, tactical, operational and strategic. Tactical battles can be won without achieving a political object. The choices that tactical decisions impose are confined largely to the military arena. Tactical successes force decisions on deployment and employment of available forces as opposed to national decisions on pursuit of an object. Operational decisions are the result of the linkage of a number tactical successes. Operational decisions can achieve a strategic political object. The tactical successes of the allied Army and Navy Pacific campaigns in the World War II provide an excellent historical example. Each island captured tactically provided a base for the next tactical success. The result of the linkage of these tactical successes placed Allied forces astride the Japanese lines of communication to critical war resources. This operational success forced Japan to acknowledge strategic defeat and begin to plan for surrender, albeit on Japanese terms. The capture of the Philippines, Okinawa and Manchuria by Allied military elements followed by naval and air bombardment, including atomic bombs, forced some unpleasant choices on Japan. The Emperor of Japan stated "... the time has come to bear the unbearable...[accepting the surrender terms of the Allies]"⁵⁹

Strategic successes as a result of a single battle are uncommon. The resilience of nations, improved technology and mass armies all argue against achieving one's purpose in a single battle. However, as both Corbett and Clausewitz point out, in a limited war with an object of little value to one party, it is possible for a single tactical event to lead to strategic success. One recent example is Somalia. In a single tactical action, 17 US soldiers were killed by one Somali faction. As a result the US retreated from Somalia. An argument can be made that the US political object was weak and ill-defined. The result of the Somalia victory was abandonment of US efforts in Somalia and retreat. Of note, this situation more often occurs when negative aims are pursued or there no clear linkage of ends, ways and means.

Forcing a nation to adopt a course of action that is at worst contrary to their national interest, or at best does not advance national interests, requires operational and strategic action. This is true unless the object has only minor value. Decisiveness of military action is thus keyed to two components, value of the object, and from that, the potential need for operational or strategic military victory.

Elements of the Decision

The foregoing provides the framework for examining the notion of decisive military operations. A tactical battle or series of battles can only be considered decisive when a different result could potentially *change the outcome* of the war. If different battle results could not provide the proximate cause leading to operational success and achievement of political objectives then that battle cannot rationally be considered decisive.⁶⁰ If the Japanese had held on to the Philippines would American political will

been sufficient to continue the fight for unconditional surrender ? An argument can be made that Japanese tactical victory in the Philippines could have lead to a negotiated surrender with more favorable terms for the Japanese.

Clausewitz in On War indicates that a tactical battle is decided when the enemy force can no longer resist and is compelled to submit to the will of the victor. He establishes three key elements for determining when a tactical decision has been reached. First, the will of the enemy commander begins to falter as he sees his plans frustrated and his forces defeated at various points. Second, military forces engaged in the battle are attrited at a rate much faster than the opposition's forces. The resulting imbalance of military force hastens the process of attrition on the weaker force. Finally, Clausewitz states that the amount of ground lost is a definite indicator of the decision. If military forces are driven from the field of battle with the enemy in pursuit one can safely assume that a tactical decision has been reached.⁶¹

Clausewitz, as well as many other military theorists, insist on the linkage of political objectives to military objectives.

When whole communities go to war...the reason always lies in some political situation, and the occasion is always due to some political object. War, therefore is an act of policy...The political object is the goal, war is the means of reaching it, and means can never be considered in isolation from their purpose.⁶²

Based on Clausewitz, decision then consists of two components, military actions that lead to political submission and a decision by the opposing nation to accept a less than desirable endstate.

In his book Pursuit of Victory, Brian Bond further develops the concept of decision in his description of victory. Central to his notion of a decisive action is that the

enemy must accept the decision of the battlefield. This harkens back to the duality of decision containing military and political aspects. Even if the enemy military forces are defeated in battle, the political leadership does not have to accept that as equivalent to failure. Conflict can be carried on in other domains, economic, political and diplomatic. The other key component Bond discusses is the acceptance of the settlement by not just the defeated nation, but all concerned parties. The implication is that the political settlement must provide for accommodation of the interests of partners, allies and regional players as well as the national interests of the victor. If it does not, political settlements will not be enduring. Finally, the battle must terminate at an opportune time and in a manner that sets the conditions for the political settlement. Allowing a nation to preserve a portion of its military force by ending combat prior to total destruction may provide the opportunity for a lasting settlement. Demanding unconditional surrender and total disarmament could inspire continued resistance. The ability of an enemy to accept the decision of the battlefield is often dependent on timing.⁶³

From the foregoing we can derive the key elements that define a decisive activity in war. First, recognizing the duality of a decision, military action must not only defeat the opposing military force, the defeat must naturally lead to the acceptance of the political objectives. The enemy must accept the decision of the battlefield or at least the evidence of the tactical events even when the final outcome may remain ambiguous. As Margaret Thatcher said in a television interview, "...[a dictator] must be beaten thoroughly so that he knows that he is beaten and his followers know that he is beaten."⁶⁴

Second, the political settlement must accommodate the interests of all parties concerned. The aftermath of World War I provides an excellent historical example of a poor political settlement that was doomed. It did too little to secure French borders and attempted too much in balancing European power. In fact the treaty of Versailles was instrumental in setting the stage for World War II.

Third, the military activity must consider timing and battlefield conditions that set the stage for decision and a political end to conflict. Planning to cease military operations if a combatant nation conducts an internal realignment of political power may provide the conditions for satisfaction of political goals. Continuing military operations can have an unwanted effect of stiffening resistance. Sun Tzu points out that an army without hope fights with greater tenacity.⁶⁵

Based on the foregoing one can begin to see the silhouette of a definition for decisive military force. Military operations are tied to the achievement of a political object. The amount of force necessary is dependent on the value of the political object. A valued object will require operational and strategic use of military force. The combination of military efforts must culminate in a fashion that makes defeat inevitable and apparent. The timing of military operations must support achievement of the political object. The military endstate must be satisfactory to all involved parties to insure durability of the victory. Decisive use of military force could therefore be defined as *use military force scaled to the value of the object to provide the proximate cause* [forces a decision] *for the timely acceptance of an (enduring) political settlement* [contrary to perceived national interests of the defeated belligerent] *by a political entity*.

Conclusion

Decisive use of military forces is a complex issue. Interaction between nations happens at multiple levels involving diplomacy, economics, honor, and self interest as well as military force. Russell Weigley, a noted military historian, includes remarks in many of his works that combat is decidedly indecisive and has been so at least since Napoleonic wars. His view is based on the fact that the results of combat never seem to be final and the "decision" reached through force of arms one day is overcome the next day by other events.⁶⁶ Regardless of Weigley's notion, military force has and in all likelihood will continue to be used to achieve national political objectives albeit perhaps only in the short term.

Decisive military operations are the proximate cause for the acceptance of a political settlement. In other words military operations are the tool that induces a political entity to adopt, abandon or change a course of action -- a course of action adopted initially in pursuit of national interests.

In the next section, three historical examples of the use of air power will be examined using the criteria established in this section. We will determine if strategic air power was the sole military element that forced a nation to decide to abandon pursuit of national interests.

SECTION II

View of Strategic Bombing in History

“History shows that the surest way to take the fighting spirit out a nation is to defeat its main army. All other means calculated to bring the enemy to his knees are contributory.”⁶⁷

Naylor

Introduction

In the previous sections, we have explored the nature of air power theory and the concept of decisive military action to achieve national political objectives. As noted in the 1997 Air Force Manual 1-1 (Basic Aerospace Doctrine of the United States Air Force), air power has four fundamental components, close air support, aerial interdiction, air superiority (counter-air operations)⁶⁸ and strategic attack/bombing. Although there are other supporting functions described in the manual, including aerial refueling, air transport, information operations and reconnaissance and surveillance, these are enablers for the four base components.⁶⁹ The distinction between the fundamental components of air power is based on target sets and desired effects. The first three components target military and military related elements including transportation and communications infrastructures with military application. The desired effect is Clausewitzian in nature - - the “destruction of the army [armed forces]”, the means to resist. Strategic attack is devoted to attacking all components of society including industrial, economic, social and political targets.⁷⁰ The intent is to destroy will of the nation by destroying the means to resist. The basis for attack of the will is to demonstrate that achieving the desired object will extremely costly or even impossible.

Interdiction and close air support are closely associated with joint operations.

Tactical air power sets the conditions for “[exploitation] by ground forces in greatly reduced numbers, with greatly reduced casualties, and greatly reduced costs.”⁷¹ Tactical interdiction focuses on destruction of a nation's military means to wage war. Close air support is air power applied under the direct and immediate control of ground commanders to destroy opposing military forces. Interdiction is attack of targets beyond the point of direct control by tactical ground or sea commanders to shape the battlefield for future operations.

Strategic attack, on the other hand, is tied to the Douhet's grand vision of an air force single-handedly bringing a nation to its knees. Strategic bombing comes in a variety of forms, from massive attack of population centers, to selective attack of national leadership, to precision bombing of key elements of the national infrastructure. Strategic bombing is an extreme example of Delbruck's war of annihilation. It is fundamentally a continuation of the thread started in pre-Napoleonic warfare of seeking a rapid decisive military victory. As Weigley put it, “[achieve victory with a] quickness and dispatch that would keep the costs of war reasonably proportionate to the purposes attained.”⁷² In this case however the target is the will of the nation not the Army.

With that understanding of the fundamental differences between the “yin and the yang” of air power, this section will explore whether or not strategic bombing was the decisive factor or just a contributing factor in defeating Japan, peace with honor in Vietnam, and the victory in the Persian Gulf.

The Bombing of Japan

The strategic bombing of Japan, including the atomic bombing of the Japanese cities of Hiroshima and Nagasaki, was a continued attempt to achieve political objectives with

strategic air power. Prior to the use of atomic weapons on Japan, the atomic bomb had not been elevated to the stature of a weapon to end all wars. Many considered it simply a larger, more powerful conventional explosive device.⁷³ This outlook allows one to consider this strategic bombing attack without the baggage of the late 20th century's anathema to atomic weapons. To be understood in its entirety the bombing of Japan must be placed in the context of Japanese national objectives, the governmental system, the situation in 1945, and Allied strategy.

Japanese National Objectives

The home islands of Japan are lacking in natural resources necessary to for an industrial nation. The Japanese relied heavily on imports of steel, petroleum and other raw materials to fuel industry. Japan's prosecution of an expansionist war with China since 1931 put an increasingly heavy load on an economy struggling to make do with a very small resource base. Complicating its heavy reliance on imports, the United States and Britain attempted to assure that Japan would remain merely a regional naval power with the Washington Naval Treaty of 1922.⁷⁴ This denied Japan recognition as a peer of the United States and Great Britain.

Japan's aggressive actions to acquire resources in French Indochina led to a trade embargo by the United States in July 1941. The American demand that Japan give up all their gains on the Asian mainland in return for resumption of commercial relations with the United States troubled the Japanese. To accept the American fiat would be an abject humiliation for the Japanese empire and certainly cause internal dissent and perhaps revolution.⁷⁵ With the objective of national self-sufficiency, Japan set a course for war with the colonial powers in Asia, the British, Dutch, and the United States.⁷⁶ Acquisition of

resource rich colonial possessions in southeast Asia, Malaysia and the Netherlands Indies could provide for all of the Japanese resource needs. A lightning strike at the United States Pacific Fleet was expected to accomplish two key tasks. First, it would provide the Japanese with time to build forces and fortify a defense. Second, it would bloody U.S. forces and hopefully diminish the willingness of the U.S. populace to push back Japanese gains so far from America. With these European countries engaged in war on the European continent, and the United States Navy far behind in building to the limits of the Washington Naval Treaty, the Japanese saw a window of opportunity to establish the "Greater Asia Co-Prosperity Sphere."⁷⁷

The Japanese Governmental System

The Japanese imperial form of government provided the mechanism for Japanese national decisionmaking. To begin to understand the Japanese decision to surrender in August 1945 one must have a rudimentary understanding of the mechanisms of the Japanese government. The Japanese government was an oligarchy consisting of the emperor and a ruling elite with military and civilian factions. The military prepared and controlled strategic planning for the empire. The civilian ministers had actual responsibility for running the country with constant and often overbearing direction from the military. The Cabinet combined military and civilian leadership into a formal organization for national policy making. The Cabinet could not be formed without a War and Navy minister. This effectively gave the armed forces control of the cabinet ministers. The military also controlled the national armed forces. The threat of armed revolt by the military because of unpopular political decisions was a constant factor in Cabinet debate. The Cabinet composition and the Prime Minister could change as a result of real or perceived failures

resulting in resignation or a vote of no confidence. The Emperor, traditionally thought of by the Japanese as a semi-divine being, was largely a religious symbol serving as a rallying point for the population. The Emperor's influence on state policy was negligible.⁷⁸ The closest confidant the Emperor had was the Lord Keeper of the Privy Seal. The Lord Keeper controlled the privy and state seals that were affixed to imperial rescripts and legislative acts or orders. His function was to be in constant attendance of the Emperor and provide advice as appropriate. The Lord Keeper functioned as the eyes and ears of the Throne assessing the climate of the nation, prevailing opinions, rumors and activities ongoing in the nation and the world. He was expected to remain non-political and provide sound, reasonable untainted advice.⁷⁹ The Japanese form of government in 1945 provided little or no voice for the Japanese people. The average Japanese civilian simply and obediently followed the path chosen by his leaders.

Situation in 1945

By late 1944 and early 1945 the Japanese found themselves in an unenviable situation both economically and militarily. Because Japan approached this conflict with limited objectives, no war economy was established until far too late. The Japanese intent was to consummate the occupation of the resource rich regions of Asia rapidly, intimidate the Americans by destruction of the Pacific fleet and then consolidate the gains by seeking a negotiated peace. Because of the expected limited nature of the conflict, Japan did not attempt to expand the economy to support the war effort. The leadership merely transferred available resources from civilian to military use.⁸⁰ As a result, when Allied forces began the destruction of Japanese military resources, replenishment of military equipment became problematic. Adding to the problem was the naval blockade by Allied forces. This

succeeded in strangling the nation's economy long before strategic bombing commenced.

By the end of the war in August 1945 the Japanese merchant fleet was reduced to just under half a million tons of cargo capacity. About 75% the merchant fleet had been destroyed before 1 January 1945.⁸¹ The naval blockade, in conjunction with the continuing destruction of Japanese military power by Nimitz and MacArthur, devastated the Japanese economy.

The following chart illustrates the state of the Japanese economy over time.

<u>Industry</u>	<u>Peak Production</u>	<u>1st Qtr</u> <u>1945</u>	<u>2d Qtr</u> <u>1945</u>	<u>July 1945</u>
Rubber	1944 (1 st Qtr)	18%	10%	0%
Aluminum	1944 (2d Qtr)	26%	15%	8%
Oil Refining	1941	27%	9%	0%
Steel	1943	32%	UNK	13%
Ordnance	1944 (3d Qtr)	42%	31%	22%
Explosives	1945 (1 st Qtr)	100%	75%	45%

Figure 2. Production in Japanese Industries as percentage of peak production.⁸²

In spite of extensive stockpiling of resources diverted from civilian use, the Japanese government found that by July 1945, Japan's defeat was inevitable from an economic standpoint.

Militarily the situation was equally bleak for Japan. The Allied recapture of the Philippines in December 1944, and the continuing march to Okinawa in June 1945, brought Allied forces within land invasion range of the home islands. The Japanese felt that the battle for the Philippines was decisive. Premier Kosio stated, "If Japan wins on Leyte, Japan wins the war!"⁸³ After the loss of the Philippines, Japanese military officials denied the

decisiveness of this defeat and prepared for a decisive battle on Okinawa, the strategic gateway to Japan. The loss of Okinawa opened Japan for land invasion. To thwart final defeat, the Japanese military produced yet another plan. The Ketsu-Go plan called for a final climatic battle to prevent the invasion of the home islands. Military planners acknowledged that the intent was not to win the war, simply to forestall defeat to achieve a more acceptable peace treaty.⁸⁴

In the Asian theater, the Kwantung Army continued to struggle in Manchuria. Originally conceived as a hedge against the possibility of a U.S./U.S.S.R. attack across Manchuria the 13 division Kwangtung Army was by 1945 a mere shell.⁸⁵ Originally considered the pride of the Japanese military establishment, the Kwantung army had been raped to provide replacements for losses on the Pacific. It had little ability to resist the Soviet attack that came on 9 August 1945, three days after the atomic bomb fell on Hiroshima. The Soviet attack smashed the Kwantung army and prepared the way for Soviet occupation of Manchuria and Korea. Strategically this placed a hostile power with unlimited resources at Japan's back door.⁸⁶ The Soviet unilateral abrogation of her Neutrality Pact with Japan and the ease with which the Soviet army defeated the Kwantung army closed the last corridor for Japanese militarists. The annulment of the Neutrality Pact with Japan occurred within days of Japan's approach to the Soviet Union to act as a mediator to negotiate peace with the Allies in the Pacific. The Soviet attack effectively closed that diplomatic door to Japan.

The surrender terms for Japan were promulgated in the Allied Potsdam Proclamation. This treaty was produced on 26 July 1945 and outlined the following criteria for Japanese surrender;

- Elimination of the leaders who planned and led the Japanese to embark on world conquest.
- Occupation of Japan by Allied forces.
- Limitation of Japanese sovereignty to Honshu, Hokkaido, Kyushu, Shikoku and other minor islands as determined by the Allies.
- Disarmament and demobilization of Japanese military forces.
- Prosecution of war criminals.
- Restoration of democratic human rights in Japan.
- Access to raw materials and re-industrialization of those industries necessary to sustain a civilian economy and provide capital to pay reparations.
- Self determination of the Japanese people to select a government of their choosing.⁸⁷

While many of the provisions of the Potsdam Treaty caused concern within the Japanese cabinet, the major sticking point was the notion of self-determination. None of the leadership could imagine this radical change of governmental form and the possible dissolution of the monarchy. The close relationship between Japanese culture, religion and the divinity of the Emperor, made this provision of the Potsdam Proclamation an anathema.⁸⁸ The Japanese military leaders believed that this onerous condition for surrender might be modified by a final battle for the home islands that would bleed Allied forces and allow further negotiation.

In July 1945, Japan was economically comatose and militarily prostrate. Supply lines to vital resources were severed and enemy armies were virtually on the shore of the

home islands. Japan was dying and only had left one final military spasm to be used in hope of achieving more acceptable surrender terms.

Allied Strategy

The world had been at war for five years. Germany had surrendered in April 1945. Japan was the final warring Axis power. Allied strategists wanted the war with Japan ended quickly. Four strategies were available; invasion, inducement, strangulation or shock.⁸⁹

Operation OLYMPIC was the plan developed for the invasion of Kyushu on or about 1 November 1945. After Kyushu was captured, Operation CORONET, the invasion of the Tokyo plain would be conducted. Admiral Ernie King, Commander in Chief U.S. Fleet and Chief of Naval Operations, and Admiral William D. Leahy, President Roosevelt's personal advisor, both felt that continued bombing and naval blockade could force Japan's surrender without invasion. General Marshall, U.S. Army Chief of Staff, pointed out that experiences against Germany showed that air power alone could not drive Japan out of the war. General Ira Eaker, representing General Hap Arnold - Commanding General Army Air Force, echoed that sentiment and added that air losses are always greater when air power is used in isolation. All agreed that capture of Kyushu would certainly cause a feeling of "utter helplessness" among Japanese military leaders.⁹⁰ Casualties for this operation were estimated by the Joint War Plans Committee to be about 40,000 for both operations.⁹¹ On 18 June 1945, the President sensed that the Joint Chiefs of Staff were unanimous in their opinion that Operation OLYMPIC was the most reasonable course of action. The invasion of the Tokyo plain would remain contingent on Russian entry in the war on Japan. Marshall's message to MacArthur on the results of the planning conference stated; "Russia's entry into the war would be a pre-requisite to landing in the Japanese homeland in December."⁹²

Inducement for Japan to end the war can be viewed simply as modifying the surrender terms to satisfy Japan. As noted earlier the Potsdam Treaty's provisions had one major issue for Japan, the retention of the monarchy. Joseph C. Grew, an Under Secretary of State for President Roosevelt, used his knowledge of Japan gained from ten years as an ambassador there to draft a proposed text for the Potsdam Treaty acceptable to Japan. The text read, "The occupying forces of the Allies shall be withdrawn from Japan as soon as these objectives [designated in other sections] have been accomplished and there has been established a peacefully inclined, responsible government of a *character representative of the Japanese people. This may include a constitutional monarchy under the present dynasty if the peaceloving nations can be convinced of the genuine determination of such a government to follow policies of peace...*"[emphasis added].⁹³

James F. Brynes, Truman's Secretary of State, after the death of Roosevelt saw no need to accommodate Japan. Paragraph 12 of the approved Potsdam Treaty justifies Grew's concerns that his text would be discarded. Paragraph 12 reads: "The occupying forces of the Allies shall be withdrawn from Japan as soon as these objectives [designated in other sections] have been accomplished and there has *been established in accordance with the freely expressed will of the Japanese people a peacefully inclined and responsible government* [emphasis added]." The Truman administration felt the protracted and cruel war conducted by Japan was a result of the failings of the monarchy. A "democratic" Japan would be less inclined to military adventurism in the future. Additionally, there was little sympathy for Japan. Her initial aggression and reputation for savageness left little room in U.S. public opinion for accommodating Japanese desires.

Strangulation of Japan was well underway in 1945. The naval blockade conducted after the capture of the Philippines all but eliminated any Japanese industrial output. The blockade in conjunction with continued attrition of military forces by combat was reducing Japanese war material. Admiral Leahy believed that Japan would surrender in a matter of time. The issue facing Allied leadership was the growing restlessness of their population concerning continuing the war. War weariness had reached new heights and in some cases was beginning to overcome the public passion for revenge against the Japanese. The war was won, but each day the Japanese held out against unconditional surrender, the demands of the Allies citizens for a negotiated end to the war increased.

The final strategy available was one of shock. The development of the atomic bomb provided a military tool of unprecedented destructive power. Henry Lewis Stimson, the Secretary of War, summarized the strategy, "I felt that to extract a surrender from the Emperor and his military advisors, they must be administered a tremendous shock which would carry convincing proof of our power to destroy the Empire. Such effective shock would save many times the number of lives, both American and Japanese, than it would cost."⁹⁴ American leaders based the need for this strategy on the continuing Japanese intransigence -- their unwillingness to acknowledge defeat evidenced by answering the Potsdam Proclamation demands with silence. A sudden violent demonstration of Allied ability and willingness to completely destroy Japan was necessary to consummate victory for the Allies.

The beauty of these strategies was their ability to be conducted in tandem. The choice of one strategy did not compromise the others. There were sufficient resources

available to continue to plan invasion, continue strangulation, negotiate and drop atomic weapons.

Use and Effects of Atomic Munitions on Japan's Decision to Surrender

On August 6 and again on August 9, 1945, Japan was struck by American atomic weapons. The detail of the decision to use the weapons provides little information on the actual effects on Japan. It is sufficient to note that the expectations of the American leadership, Truman and his advisors, was that the demonstration of this new weapon would compel the Japanese to surrender by sundering their will to fight. In Truman's words, "We are now prepared to obliterate rapidly and completely every productive enterprise the Japanese have above the ground in any city...Let there be no mistake; we shall completely destroy Japan's power to make war...Their leaders promptly rejected that ultimatum [Potsdam Proclamation]. If they do not accept our terms they may expect a rain of ruin from the air, the like of which has never been seen on this earth..."⁹⁵

The Japanese reaction to the atomic bombs and the Presidential statement was predictable. The statement was dismissed as American propaganda and the effects of the atomic blast minimized. When the governmental investigation team arrived at Hiroshima, the officer in charge of the airfield declared that the simple countermeasure of covering items "even slightly" would prevent damage.⁹⁶

On 9 August Premier Suzuki convened the Supreme Council to determine the Japanese response to the atomic weapons. The issue at hand, as it had been in April when Okinawa fell was not whether to surrender, but on what terms. No one on the council opposed accepting the Potsdam Proclamation in principle, merely on what terms to accept the agreement. The military leadership believed that they were capable of one final decisive

battle to modify the terms of surrender. Togo, the Foreign Minister, noted that this strategy would completely exhaust the armed forces and leave Japan defenseless against the expected continued attacks against the home islands. He believed that this strategy would leave Japan in a worse position than ending the war at once on the sole condition that the monarchy be retained as the form of government. This echoed the position expressed by the Emperor on 22 June when he spoke to six members of the Supreme Council after the Allies consolidated their hold on Okinawa.⁹⁷

The council remained deadlocked with the military insistent on a final battle and the civilian leadership lead by Togo desiring immediate surrender with the one aforementioned condition. The Russian invasion of Manchuria and the handy defeat of the Kwantung Army added more weight to Togo's arguments about the inability of Japan's military to resurrect any type of victory from the ashes of defeat. Just before midnight on 9 August 1945, the Emperor entered the council chambers. He had been informed by Premier Suzuki and Foreign Secretary Togo that the council was unable to reach consensus or even majority over the course of action for Japan. Admiral Toyoda, Chief of the Naval General Staff, opened with summation of the military position, "We cannot say that final victory is certain but at the same time we do not believe that we will be positively defeated."⁹⁸ The Emperor responded to Toyoda with the following,

...continuing the war can only mean destruction for the nation...I was told by those advocating a continuation of hostilities that by June new divisions would be placed in fortified positions at Kujukuri-hama so that they would be ready for the invader when he sought to land. It is now August and the fortifications still have not been completed. Even the equipment for the divisions which are to fight is insufficient and reportedly will not be adequate until after the middle of September. Furthermore, the promised increase in the production of aircraft has not progressed in accordance with expectations.

There are those who say that the key to national survival lies in a decisive battle in the homeland. The experiences of the past, however show that there has always been a discrepancy between plans and performance. I do not believe that the discrepancy in the case of Kujukuri-hama can be rectified. Since this is the shape of things, how can we repel the

invaders?... [The conditions of the Potsdam Treaty may be unbearable]...Nevertheless the time has come to bear the unbearable. I swallow my own tears and give sanction to the proposal to accept the Allied proclamation on the basis outlined by the Foreign Minister.⁹⁹

With that impassioned plea for the council to adopt that course of action the Emperor left the room. The military leaders were loath to accept the imperial decision, and in fact under the Japanese form of government were not bound to it. The arguments continued well into the early morning of 10 August before agreement was reached. On 10 August 1945, Japan accepted the Potsdam ultimatum "with the understanding that said declaration does not comprise any demand which prejudices the prerogatives of His Majesty as a Sovereign Ruler."¹⁰⁰

Analysis of Atomic Bombing

Was the atomic bombing of Japan the proximate cause for acceptance of the demands of the Potsdam ultimatum? If not the atomic bombs, what was the decisive military action against Japan? The Emperor's statement to the council is revealing. He notes that the military strategy for gaining better peace terms is bankrupt. The military units are not available and even if they were, they could not be equipped. The fortifications to repel the invaders are not completed and aircraft production is not adequate. In a veiled reference to the "decisive" battles of the Philippines and Okinawa, the Emperor notes "...there has always been a discrepancy between plans and performance."¹⁰¹ The Emperor's statement provides the first reason for surrender. The Japanese did not have any viable military strategy for successful termination of the war, hence an inability to achieve political objectives by military force.

The second reason for surrender was the decrepit state of the Japanese economy. It was simply unable to support effective military operations. By November 1944 all elements

of the Japanese economic system were on a severe production downturn. The Allied naval blockade had effectively strangled the industrial complex that supported the war effort. The United States Strategic Bombing Survey states “even without direct air attack on her cities and industries, the over-all level of Japanese war production would have declined below the peak levels of 1944 by 40 to 50 percent solely as a result of the interdiction of overseas imports.”¹⁰² The Allied naval forces had succeeded in destroying the merchant fleet and blockading the home islands. The Japanese industrial machine had almost run out of fuel literally as well as figuratively.

Was the massive destruction caused by the atomic bombs the decisive blow that caused surrender? The atomic bombs did kill a large number of people, estimates range from 100,000 to 150,000 killed in the two nuclear blasts at Hiroshima and Nagasaki.¹⁰³ In hindsight it is easy to conclude that this destruction caused the Japanese surrender, however when one considers that by 6 August over 800,000 had been killed by incendiary bombing, the atomic blasts become marginalized except perhaps for the shock effect of one bomb - one city.

The Japanese political aims shifted dramatically after the loss of the Philippines in December 1944 and later Okinawa. In February 1945 the Emperor called several senior Japanese statesman, former premiers, to the palace to provide views on the future of the war. General Tojo advised the Emperor that defeatism was the main enemy and that Japan could bloody Allied military forces to reach a negotiated peace if they could maintain their determination. However Prince Konoye provided the most realistic view of the war to the Emperor. He stated, “Sad though it is I believe that Japan has already lost the war.”¹⁰⁴ Konoye emphasized that spiritually the Japanese military was undefeated but physically they

lacked the ability to continue. It appeared to him that the military strategy of seeking a final battle to get better peace terms was a useless sacrifice. Konoye noted that the Allies had not yet put forth any onerous terms for surrender and perhaps a direct approach to the U.S. and British government could yield an acceptable peace.¹⁰⁵ Both military and civilian leaders realized the loss of the Philippines and the continuing drops in economic production doomed Japan to defeat. The issue at hand was simply when to surrender. The atomic bombs did not cause Japan to surrender. They did cause a reassessment of the ability of Japan to achieve national interests with the available military tools.

Analysis of Strategic Bombing

What did strategic bombing accomplish? The two effects desired by strategic bombing were to destroy the industrial base of Japan and debilitate the will of the people to continue the war. Over 160,800 tons of bombs were dropped on the Japanese home islands to achieve these effects.¹⁰⁶

As illustrated earlier the economic engine of Japan was dying from a lack of resources caused by the naval blockade. Although during July 1945 Japanese industry declined significantly from peak production in 1944 strategic bombing played a minor role in many segments of the economy because the effects were already achieved by interdiction of resources.¹⁰⁷ Electrical power and coal consumption fell by 50%. Electrical power was available but there was little demand due to shortages of raw materials for production. Coal supply was limited by the inability of rail and inter-island shipping to move the coal to demand areas. Aircraft production fell as a result of the dispersal program to prevent destruction of machinery and tools. However if production had been any higher aluminum stocks would have been exhausted. Shipbuilding and heavy ordnance manufacture was

limited by the decreasing availability of steel. The bulk of the war industries including oil refineries, aluminum plants, and steel plants were starving for raw material to continue production. Even the Japanese labor force was affected by the blockade. Food was rationed with the bulk provided to feed the military. Japanese workers suffered from malnutrition and the resulting fatigue. Combined with the conscription of skilled workers to serve in the military, the Japanese labor force was a shadow of its 1944 robustness.¹⁰⁸ Strategic bombing apparently did little more than contribute to the effectiveness of the naval blockade by causing Japan to use stockpiled materiel at a faster rate.

The USSBS indicates that in their interviews, the Japanese people stated that air attack was the principal reason for believing that they had been defeated. The survey reveals that 68% of the people interviewed felt that Japan had been defeated. Only 1/2 of that number (68%) attributed air attack, other than atomic weapons, as the reason Japan could not achieve victory. One-third attributed military defeats and the remaining segment (1/6) said that food rationing and shortages of supplies made them believe that Japan was defeated.¹⁰⁹ A closer analysis of the figures reveals that 32% (100% (total population interviewed) --68% (believed Japan was defeated)) of the people interviewed must have felt that Japan was not defeated. This contrasts with the 34% (68% divided by 2) who felt that air attack indicated defeat and 22.6% (68% divided by 3) who thought military defeats spelled the end. In other words 65.9% (32% not defeated + 22.6 % military defeats + 11.3% shortage of resources) of the people interviewed felt that reasons other than air attack indicated that Japan could not achieve victory. In another survey, 64% of the population said that they had reached a point prior to surrender where they personally could not go on with the war, 36% felt that they could continue. Of that 64 %, 16 % felt that a shortage of supplies made them personally

unable to continue the war effort. An additional 6.4% blamed military defeats for causing their personal inability to continue. The USSBS does not break out the remaining 41.6% (64%-22.4%) but provides the note that the largest part of the remainder attributed air attack for their personal surrender. Assuming that the proportions hold true for both surveys one can postulate that between 8 to 9% of the unaccounted for people had reasons other than air attack. This leaves air attack with a small majority of 33.6% (41.6% - 8%), just over half of the surveyed population that felt unable to continue.

The fact that two-thirds of the population did not feel that air attack defeated Japan hardly provides a ringing endorsement of the effects that strategic bombing had on the Japanese people. When one adds the nature of the Japanese government described earlier, apparently strategic bombing could not break the will of the Japanese people. USSBS states, "[even after extensive bombing] It is probable that most Japanese would have passively faced death in continuation of the hopeless struggle, had the Emperor so ordered."¹¹⁰

Japan's decision to surrender was based on two factors, lack of a viable military strategy to achieve the desired political aim (negotiated surrender), the starvation of the economic base to support military operations. The capture of the Philippines and the subsequent destruction of the Japanese fleet, war and merchant, spelled the end for the Japanese. Premier Koso and other Japanese leaders acknowledged that after the loss of the Philippines the outcome of the war was decided. With Allied forces astride the lines of communication to the resource rich areas it was only a matter of time and attrition. The atomic bombs provided an impetus for a closer examination of Japanese strategy, but the war was lost for Japan in December 1944. The U.S. Strategic Bombing Survey notes, "Military defeats in the air, at sea and on the land, destruction of shipping by submarines and by air,

and direct air attack with conventional as well as atomic bombs, *all contributed to this accomplishment* [Japan's surrender]."¹¹¹ Thus the economic and military ability of the Allies to simultaneously pursue four unique strategies, invasion, shock, inducement, and strangulation forced Japan's decision to surrender.

LINEBACKER - Vietnam 1972

"Every time I get a military recommendation it seems to me that it calls for large scale bombing. I have never felt that this war will be won from the air."

President Lyndon B. Johnson in a cable to Ambassador Maxwell Taylor, December 1964¹¹²

In 1972, the United States had been militarily involved in Vietnam for almost 20 years with little to show for it. Each military strategy attempted from simply advising South Vietnamese forces to commitment of U.S. combat elements in 1962 had not had the desired effect of ending North Vietnamese attempts to overthrow South Vietnam. In 1965, the United States made its first attempt to use strategic bombing to achieve a political objective in Vietnam. Rolling Thunder was planned as a gradually escalating air attack that would, "...create conditions for a favorable settlement by demonstrating to the Viet Cong/Democratic Republic of Vietnam that the odds are against their winning." The consensus in the political and military leadership in the United States was that bombing would compel the North to stop aggressive activity. The bombing would be escalated or decreased according to North Vietnam's activities. Rolling Thunder targets were closely controlled by President Johnson. As the air campaign progressed it became apparent that it was a failure. In fact, the North Vietnamese government used the bombing as a propaganda tool to reinforce the will of the population. The failure of this bombing campaign has been

attributed to a number of causes, gradual escalation versus massive attack, rigid political control of targets, and the lack of intelligence on appropriate targets.¹¹³

Continuing public pressure pushed President Nixon to a new strategy, Vietnamization of the war. The US would continue to provide materiel, but South Vietnam forces would secure their country without U.S. combat forces. Vietnamization, in concert with diplomatic measures to get North Vietnam to sign an agreement ending their aggressive attempts to capture South Vietnam would provide the United States "peace with honor." The political object of the United States remained setting the conditions for a free and democratic South Vietnam, however the ways and means were changing as a result of waning public commitment.

The North Vietnamese had in large part adopted a Maoist strategic outlook on the conduct of the war. They had carefully gone through the phases as outlined in Mao's strategic writings from the Chinese - Japanese conflict of the 1930's augmented by their own unique circumstances.¹¹⁴ In 1971, massively supplied by the Russians and Chinese, the North Vietnamese were ready to enter Mao's strategic offensive phase with conventional forces to complete the "liberation" of the South. In March 1972, the North Vietnamese began their Easter Offensive using the tanks and other heavy equipment provided by the Soviet Union to conduct conventional operations against South Vietnamese forces.

Linebacker I

In March of 1972, the South Vietnamese ground forces could not counter an armor supported invasion by conventional forces. Over the years 1968 to 1972, President Nixon had ordered the withdrawal of over 150,000 Americans in combat and support units. In January of 1972 only 139,000 Americans remained and that number was to drop to 69,000 by

April of 1972.¹¹⁵ The under-trained and underequipped South Vietnamese ground forces were largely on their own. The United States remained committed to providing tactical air support for South Vietnam until the South Vietnamese air force could be equipped and trained.

U.S. support of South Vietnam with tactical air provided a thread of continuity consistent with U.S. policy developed in the 1950's under President Eisenhower. Eisenhower's security policies emphasized collective security with emphasis on allies providing ground forces and the United States providing air and naval support.¹¹⁶ The introduction of U.S. ground forces into Vietnam was driven by the failure of Rolling Thunder and the need to provide time for the South Vietnamese to organize and train self-defense forces. President Nixon's desire to withdraw U.S. ground forces and rely on air power to support South Vietnamese forces was a return to national security policy adopted under Eisenhower in National Security Council Memorandum 162/2.

Linebacker I was conducted from 10 May 1972 to 23 October 1972. The targets were North Vietnamese ground forces and the tactical logistics infrastructure necessary to support a conventional heavy forces offensive. Most attacks were by Air Force and Navy fighters, but B-52s played a key role in destroying storage areas and lines of communication. The targets attacked by the bombers however were mostly in the South and conducted in support of ground forces.¹¹⁷ The first B-52 missions were conducted on 8 June and built up to 30 sorties a day through October.

By early June North Vietnam's offensive had culminated. The combination of staunch resistance by several South Vietnamese army units, aided by U.S. advisors and close air support, stopped General Giap's forces. North Vietnamese regular forces suffered over

50,000 dead and probably at least that many wounded. Yet they had not defeated the South Vietnamese Army, overthrown the Saigon regime nor conquered significant territory. At the time Giap informed the political leadership in Hanoi that the offensive was stalled, the Linebacker I attacks on the infrastructure had just begun. Linebacker I never closed the Ho Chi Minh trail. Large amounts combat supplies continued to move between China, Vietnam and forward combat forces. During the entire period of Linebacker I the North Vietnamese willingness to enter peace negotiations was tied to the success of ground force operations. In September, when South Vietnamese forces recaptured the city of Quang Tri, the communists decided it was time to come to the negotiating table.¹¹⁸

Political Objectives of the Initial Negotiations

The three parties negotiating for peace in Vietnam had very different political objectives. The North Vietnamese wanted unification of Vietnam under communist rule. The United States wanted South Vietnam to remain a democratic nation or at least be allowed to exercise self-determination to choose their political future. President Thieu wanted a “free” South Vietnam supported by the United States with him in charge. Possibly he envisioned a re-unified democratic Vietnam with him as the elected President.

The U.S. presidential election provided the backdrop for the negotiations in Paris. The North Vietnamese proposal contained the following demands;

- United States and North Vietnam would conclude an agreement covering the military matters of the war, cease fire, American withdrawal, and prisoner exchanges.
- The political issues would remain a province for the respective Vietnamese governments to resolve. A council with representation by both Vietnams and an

unidentified neutral party would manage reconciliation, elections and supervise the implementation of a permanent peace.

- In the meantime the opposing governments would continue to exist and the respective military forces would remain in place.¹¹⁹

This simple agreement was vehemently opposed by President of South Vietnam Thieu. The South Vietnam counterproposal called for recognition of South Vietnam as a sovereign country and the demilitarized zone to become a secure border. This proposal was clearly at odds with the Northern desire to re-unify Vietnam. Thieu's primary concern was with the Council of Reconciliation. He believed that that was a ploy that would lead to a coalition government and subsequently to communist takeover.

In the United States public pressure continued to mount to end the war and get out of Vietnam. President Nixon was torn by public demands for withdrawal and his unwillingness to abandon Thieu. He directed Kissinger to submit Thieu's issues to North Vietnam as sixty-nine amendments to the original agreement. Le Duc Tho the North Vietnamese representative returned to Vietnam for consultation with the Communist hierarchy on 13 December 1972. The North Vietnamese believed that the U.S. was guilty of bad faith and trying to rewrite the draft agreement.

With the peace talks stalled by the recalcitrance of the South Vietnam and mounting pressure at home, President Nixon turned to strategic bombing as a tool to force North Vietnam back to the peace table.

Linebacker II

Linebacker II, also known as the Christmas bombing, began on 18 December 1972 as an attempt to use air power to force the North Vietnamese back to peace negotiations. The

targets were very different from Linebacker I. The 20th Parallel was no longer a restrictive measure, and Hanoi and Haiphong harbor joined the list of acceptable targets. The targets to be struck were railroad yards, storage facilities, radio communications facilities, power plants, airfields, surface to air missile sites and bridges. The message from the Joint Chiefs of Staff to implement Linebacker II carried this warning, "... exercise precaution to minimize risk of civilian casualties...avoid damage to third world shipping."¹²⁰ In the next 11 days, the air forces of the United States delivered 15,287 tons of bombs on fifty-nine targets with only 1318 civilian casualties acknowledged by North Vietnam. When coupled with Linebacker I's results, the military transportation and storage network within ten miles of Hanoi and Haiphong was disrupted and unusable. Over 1242 surface to air missiles had been fired by the North and 30 U.S. B-52s downed. By 29 December continued attacks on communist airfields and the massive expenditure of surface to air missiles had denuded North Vietnam of protection from air attack. The destruction of the rail lines of communication prevented Chinese resupply of surface to air missiles.¹²¹ On 30 December Linebacker II ended. Four days earlier, the North Vietnamese had replied to an American invitation to reconvene the peace talks once the bombing had ended.

Analysis

Were the Linebacker operations principally responsible for the signing of the peace agreement? For many years Air Force history held to the notion that strategic bombing ended the war in Vietnam. Only recently have historians looked closely at the operations in Vietnam and considered the multitude of variables that lead to the signing of a peace agreement. The difference between the failure of the 1965 strategic bombing and the apparent success of the 1972 attempts have less to do with changed methods and looser

restrictions and more to do with the dramatic change in the military and political situation. Considering the definition proposed earlier, "the use of military force scaled to the value of the object to provide the proximate cause for the timely acceptance of a political settlement by a political entity and is adequate for all involved parties" clearly Linebacker failed in some key areas.

The peace agreement signed on 23 January 1973 was not significantly different from the agreement proposed in October. The North Vietnamese negotiators agreed to recognize the demilitarized zone as a provisional boundary but not a political or administrative boundary. They also agreed to remove references to the administrative structure of the National Council of Reconciliation and Concord.¹²² Clearly these did not satisfy the political objectives of South Vietnam. President Nixon pressured President Thieu with an ultimatum, "You must decide now whether you desire to continue our alliance or whether you want me to seek a settlement with the enemy which serves U.S. interests alone."¹²³ The U.S. guarantee of intervening with full force, air power, if North Vietnam violated the agreement in conjunction with the ultimatum forced Thieu's acceptance. As historian Earl Tilford put it, "Air power, marvelous in its flexibility, had succeeded in bombing a United States ally into accepting its own surrender."¹²⁴

The United States political objective was captured by Nixon's phrase, "peace with honor." This phrase implied that the United States would provide the impetus to stop the conflict pending a political solution. This would provide the Saigon regime a "decent interval" to build forces and popular support to resist communist aggression. Implicit was the withdrawal of U.S. forces from Vietnam and a promissory note to provide air and naval forces if North Vietnam violated the agreement. On 2 January 1972, the House Democratic

Caucus passed a party resolution to cease funding of all military operations in Indochina. This was followed quickly by the approval of a Senate Democratic Caucus resolution. Although nonbinding, it sent a clear signal to the North Vietnamese that U.S. resolve was wavering. The successful propaganda effort by anti-war activists and North Vietnam to portray Linebacker II bombing as equivalent to the World War II Dresden firebombing affected U.S. policy objectives.¹²⁵ Peace with honor was replaced by a policy of U.S. disengagement at any cost.

Was Linebacker II the proximate cause of the political settlement? Two issues need to be addressed, the vulnerability of the North to attack of population centers at the end of Linebacker II, and the state of the North Vietnamese forces as a result of the destruction of military supplies and support infrastructure around Hanoi and Haiphong.

Much ado is made in U.S. Air Force histories about the vulnerability of North Vietnam to air attack after 30 December 1972. Karl Eschman, author of Linebacker, quotes Sir Robert Thompson, British authority on Asian wars; "In my view on 30 December 1972...you had won the war, it was over. They had fired 1242 SAMS; they had none left... They and their whole rear base at that point were at your mercy."¹²⁶ Did this apparent vulnerability mean anything in terms of pursuing the political objectives? The bombing of population centers to break the will of the population of North Vietnam was simply not a feasible course of action. The oligarchic government of North Vietnam was not responsive to the demands of the population. However, tactical air support of South Vietnamese ground troops did threaten the North with possible military defeat. Thus, while strategic bombing could not endanger the North's political object, continued US tactical air support with concurrent South Vietnamese ground operations could. Secondly, in spite of improving

relations with China, bombing of North Vietnam population centers was unthinkable from a political aspect. The residue from Quemoy-Matsu Crisis in 1958 and the continuing debate over the status of Taiwan made relations with China a touch and go affair. Nixon, reluctant to jeopardize his trip to China in 1971, did not demand China discontinue arming the North Vietnamese.¹²⁷ The vulnerability described by Thompson did not extend to the Ho Chi Minh Trail, the major resupply network and marshaling area for military supplies. The massed air defenses along the trail were so effective that forward air controllers and gunships were not even sent into certain areas. By the end of 1972 IGLOO WHITE, a massive program implanting sophisticated sensors along the Ho Chi Minh Trail to vector air strikes, ceased operations because of poor cost effectiveness.¹²⁸ Supplies continued to reach North Vietnamese combat forces throughout the Linebacker II operation.

The vulnerability to strategic bombing described by Thompson may have been real in the area of Hanoi and Haiphong but politically and militarily it could not be exploited to achieve political objectives.

What effects did the Linebacker II bombings have on the state of the North Vietnamese military? Certainly the airfields and surface to air missile site in the vicinity of Hanoi and Haiphong were *hors de combat* but what about the forces in contact? Linebacker II had little operational impact on North Vietnamese units in South Vietnam. Linebacker I had already struck many of the same targets and the transportation system was already in shambles. In most cases Linebacker II bombing simply rearranged the rubble from Linebacker I. Eschman provides the U.S. Air Force term in his book, Linebacker- "re-rubbling." In fact the North Vietnamese forces in the South were suffering from continued attrition of heavy equipment and soldiers from the increasing pressure from South

Vietnamese ground forces. The losses of heavy weapons in the aborted Communist 1972 Easter Offensive began to tell as South Vietnamese forces stiffened by massive amounts of U.S. heavy weapons and other equipment shifted to offensive operations. Linebacker I's efforts at interdiction and tactical close air support were instrumental at setting these conditions. Linebacker II can only be viewed as successful in conjunction with South Vietnamese ground operations

Conclusion

Air power was instrumental in setting the conditions for the peace agreement signed in January 1973. Strategic bombing was not. Linebacker I focused on interdiction and destruction of military forces, a denial campaign in Pape's terminology. Linebacker II focused on the will of the North Vietnamese Politburo to continue the fight. It was built on the flawed strategic bombing doctrine that isolation from sources of supply and destruction of industrial and transportation infrastructure would lead to dramatically increased vulnerability, a feeling that without negotiation all could be lost. In both cases without the activities of South Vietnamese ground forces the air campaign could not have accomplished the political object of forcing the North back to the negotiating table. The loss of Quang Tri in September 1972 to South Vietnamese ground forces drove the North Vietnamese to the peace table initially. The massive arming of South Vietnam and tactical successes of the ground forces, supported by U.S. tactical air, made negotiations necessary in early 1973. The North Vietnamese military leadership acknowledged that withdrawal of U.S. tactical air support would give them a renewed advantage over the South Vietnamese Army. North Vietnam needed relief from U.S. tactical air power. The treaty signed in January gave that relief without compromising the North's political object. Strategic bombing did assist in

providing a Pyrrhic victory for the United States. The negative political aim of withdrawal from the conflict was achieved.

Strategic bombing of a country with little industrial infrastructure, a rudimentary transportation network and an intense desire for the political object was an exercise in futility - "if the only tool you have is a hammer everything looks like a nail." ¹²⁹

Desert Storm

"Probably the first time in history that a field army has been defeated by air power"

General McPeak ¹³⁰

"Air power will be overwhelming, but in every war its the infantryman who have to raise the flag of victory on the battlefield."

General Colin Powell ¹³¹

In August 1990, Saddam Hussein's Iraqi Army invaded Kuwait following months of increasingly acerbic argument over territory and financial obligations. Iraq's claims that Kuwait was in actuality the 19th province of Iraq were rejected by Kuwaiti leaders. This claim in conjunction with heated arguments over pricing of oil exports by Kuwait precipitated the crisis. ¹³²

Saddam Hussein's invasion triggered deep concern in western industrialized nations. Iraqi control of Kuwait's oil reserves and the growing instability in the regional balance of power caused anxiety. In reaction to the forcible seizure of Kuwait, the United Nations passed Resolution 660 calling for the withdrawal of Iraqi troops and negotiations with the Kuwaiti regime. The resolution also imposed economic sanctions against the Iraqi regime. The Iraqi disdain for that resolution led to UN resolution 678. It set a timeline for Iraqi withdrawal from Kuwait and authorized member nations of the UN to use all necessary force

to restore Kuwaiti sovereignty.¹³³ With the United Nation's sanction, the United States began building a military coalition to force Iraqi compliance.

Within the United States political and military communities debate continued on the appropriate mix of military forces to achieve the political objectives outlined in the United Nations resolutions. Politically, President Bush wanted to project military power into the region rapidly to stabilize the situation and protect allied and U.S. interests. The military debate centered on the balance of air and ground power needed. The initial deployments of ground combat troops into Saudia Arabia had reached a level to provide an adequate defense of the Kingdom by mid October. The question was whether to continue to build a ground force large enough for an offensive operation, or allow the combination of air power, naval blockade and economic sanctions to achieve the political goal. Secretary of the Air Force Donald Rice and much of the Air Staff felt that the technological advances in precision guided munitions would allow strategic bombing to be decisive in the Persian Gulf.¹³⁴ The controversy over the capabilities of air power and the targets to be struck continued from initial planning throughout the conflict at all levels. The U.S. Air Force leadership saw Desert Storm as the opportunity for strategic bombing to prove its ability to be decisive in achieving political objectives. As a result, Iraq received a daily pummeling of 85% of the daily bomb tonnage dropped on Japan and Germany in World War II.¹³⁵ After forty-three days of the most concentrated bombing in history of a virtually undefended target area, Iraq still refused to relinquish Kuwait until 26 February 199, forty-eight hours after Coalition ground forces had initiated offensive operations.

Situation

The reason for Saddam Hussein's invasion of Kuwait has been explained a number of ways. Perhaps the most plausible is the historic desire by Iraq for Kuwait's access to the Persian Gulf and the apparent indifference of the world to Iraq's exercises of military power in the region. Iraq's eight year war with Iran over territory, which, coincidentally, included a disputed area with access to the Persian Gulf, drew yawns from western nations. As long as the oil continued to flow the world seemed unconcerned with the squabbling of the Arabs. In many respects the political objectives of Iraq resembled the motives of the early European regimes -- seize rich territories from others and incorporate it into the empire. Apparently Saddam Hussein felt, that after the initial turbulence, the world community would accept this new status quo.

The military forces Saddam Hussein mustered to accomplish this task were formidable. His armies overran Kuwait in less than four days. In September, Iraq had 14 divisions in theater. This increased by another 250,000 soldiers by the end of November in response to Coalition deployments. The Defense Intelligence Agency (DIA) estimated that at the peak of Iraqi strength there 42 to 43 divisions with over 540,000 soldiers equipped with 4,200 tanks, 2,800 armored personnel carriers and more than 3,100 artillery pieces. In addition, the Iraqi Air Force fielded about 700 combat aircraft. The Gulf War Air Power Survey (GWAPS) states that liberal Iraqi leave policies and desertion by war weary Iraqi soldiers brings the actual number of soldiers in theater down to about 336,000 or 20% less than DIA estimates.¹³⁶ In any case the Iraqi Army had sufficient numbers to overcome Kuwaiti resistance and pose a formidable facade for those countries in the region who might wish to reverse the course of events.

The quality of these troops is a subject of debate. The Republican Guards Forces Command (RGFC) consisted of the most highly trained and well equipped of the Iraqi forces. The Iraqi military strategists used the RGFC as the initial shock troops to shatter Kuwaiti defenses. The remainder of the Iraqi Army was a composite of regular army units often manned by ill trained and under-equipped draftees and reservists. The overall Iraqi military strategy was very simple. They were in a position where they did not have to win, they had simply to avoid defeat. Tactically, this meant using the regular army units to impede and attrit Coalition forces and stage lightning counterattacks with the RGFC. Saddam Hussein and his military leaders felt that the Coalition lacked the resolve to accept massive casualties over the insignificant issue of Kuwaiti sovereignty.

The United States as the leader of the Coalition had more complex policy objectives. First and foremost was the issue of oil and the world economy. Over the years of the Iran-Iraq war the United States had cultivated Saddam Hussein as a regional influence countering Iran. After the collapse of the Soviet Union, Saddam's speeches became increasingly strident in his calls for renewed Arab nationalism and the "final solution" of the Israeli problem. His continuing quest for new super-weapons, chemical and nuclear, was a destabilizing factor in the Middle East. Iraq's control of the Kuwait oil fields, and growing military power would place Iraq in the position to dominate the Organization of Petroleum Exporting Countries. This domination could cause serious economic consequences for industrialized nations relying on Mid East oil.

Second, the forcible seizure of Kuwait blatantly violated the United Nations Charter. Article 2 of the United Nations Charter decries the use of force to settle disputes. The United States saw an opportunity to enhance the concepts expressed in the United Nations charter

and set an example for other nations with disputes. A more cynical mind might say that the U.S. was flexing its muscles to demonstrate the long reach of American military power. The policy objective was to demonstrate to the world community that disputes settled with military force would be met with military force. President Bush's statement to the world captured the essence of the policy, "[The invasion of Kuwait] This will not stand."¹³⁷ The initial policy objective of the United States was thus to restore the status quo in the region. Finally, the United States policy makers wanted to insure that U.S. lives in theater were protected. This objective implied the need for some kind of retaliatory capability if U.S. citizens were harmed.

To accomplish these objectives, the United States led the formation of a coalition military force. This force grew to approximately 540,000 ground troops from 31 countries and over 1,800 combat aircraft from 12 countries. A large naval force in the Persian Gulf and Red Sea enforced a naval blockade and provided a platform for air strikes. U.S. Central Command (CENTCOM) commanded by General Norman Schwarzkopf provided the central direction for coalition military operations.

The coalition military strategy was slow to develop. The first portion was simply a rush effort to get sufficient forces into Saudi Arabia to deter Iraq from continuing south. Saudi Arabia's oil wealth is concentrated on the gulf coast easily in reach from staging areas in Kuwait.¹³⁸ The Saudi Arabian armed forces were simply not trained or equipped for the task of defeating the RGFC if Saddam Hussein seized Saudi Arabian oil fields. The military strategy controversy was created by the requirements for the offensive portion of the military strategy -- the ejection of Iraqi forces from Kuwait.

There are many variations of the story of how the air campaign was developed. The common thread in all of the stories is Colonel John Warden. As the national command authority groped for some readily available offensive option, Warden saw the opportunity to execute his theory of strategic bombing. He sincerely believed that strategic bombing with precision guided munitions would allow air power to achieve political objectives without the need of naval or ground elements. His office in the Pentagon, Checkmate, was a "think tank" for air power strategy. In that office he had refined his theories first elaborated in 1988. As described in Section I of this monograph Warden saw the enemy nation's infrastructure and power base as concentric rings. Strategic bombing allowed one to bypass fielded forces and attack directly at the heart of the enemy nation. On 16 August 1990, Colonel Warden met with General Schwarzkopf in Riyadh to discuss the air campaign plan later named "Instant Thunder". Warden briefed a strategy that would cripple Iraq's ability to continue the conflict.¹³⁹ General Schwarzkopf liked the briefing and on a sheet of paper sketched out a 4 phase military campaign, (1) Instant Thunder (2) Suppression of enemy air defenses (3) Attrition of enemy ground forces by 50% (4) Ground attack.¹⁴⁰ The campaign was clearly one of escalating risk to Iraq. Instant Thunder would attempt to gain compliance with the UN resolutions by breaking the Iraqi will. If that was unsuccessful, Coalition forces would attack enemy air defenses in preparation for destroying 50% of Iraq's army. If the pounding of the army did not force Iraq from Kuwaiti soil, the final step was a land invasion to compel a decision. The phasing of this campaign is indicative of the uncertainty that strategic bombing could be decisive in achieving the political objective. As General Powell explained, "...it's the infantryman who must raise the flag of victory over the battlefield."¹⁴¹

Strategic Bombing Campaign

The strategic bombing campaign laid out by Colonel Warden called for an intensive six day air campaign to isolate Iraqi leadership and destroy key portions of the national infrastructure. Warden used the Clausewitzian notion of centers of gravity to organize the target sets. The most important center of gravity identified was Saddam Hussein as the leader, cult figure and dictator of Iraq. Air attacks would destroy his telecommunications centers and command facilities to isolate him from the military and population. This “decapitation” in conjunction with a psychological warfare campaign would produce the overthrow of his repressive regime. The Instant Thunder plan continued to follow Warden’s theory by targeting the national air defense system, airfields, nuclear-chemical-biological sites, electric power, oil production and national lines of communication -rail and road. The effect was expected to be national paralysis compelling a rapid surrender.¹⁴² The specific goals for strategic bombing were as follows;

- Destruction of the integrated air defense system to gain air supremacy.
- Attack leadership/command facilities and telecommunications were to disrupt and isolate the regime.
- Destruction of electricity and oil production facilities to hamper military industry and discomfit the Iraqi population.
- Destruction nuclear, biological and chemical production and storage facilities to degrade the Iraqi ability to wage war.
- Destruction of rail, roads and bridges to disrupt transportation networks.

The Air Force leadership, Secretary of the Air Force Don Rice, Air Force Chief of Staff Michael Dugan and other leaders saw this plan as the opportunity to prove that air power could be decisive.¹⁴³ General Colin Powell, and General Schwarzkopf as well as

General Charles Horner, CENTCOM's air component commander, believed that strategic bombing would assist in weakening Iraq, but that decision would be reached by land invasion.¹⁴⁴ The constant argument over choice of targets was to plague military operations throughout the war. Army leaders demanded more effort on destroying Iraqi armed forces to prepare the theater for ground attack. Air Force leaders insisted that continuing strategic attack would bring victory without the necessity of land invasion.

Analysis

Colonel Edward C. Mann in his book, Thunder and Lightning- Desert Storm and the Air Power Debates, characterizes the accomplishments of air power during Desert Storm as incredible.¹⁴⁵ He is correct. Webster's New Collegiate dictionary defines incredible as "too extraordinary and improbable to be believed."¹⁴⁶ Indeed the effects of air power as described in the documents produced by the U.S. Air Force after Desert Storm appear to be merely a continuation of pre-war themes about air power could do. An examination of the goals and results reveal a discrepancy between the effects desired and the effects achieved. In the case of air supremacy Coalition aircraft could fly with impunity over Iraq -- above 5,000 feet. Hand-held surface to air missile systems and portable anti-aircraft systems continued to down Coalition aircraft. Of the 86 coalition aircraft destroyed or damaged by SAMS, 21 losses were inflicted in the last seven days of the conflict, much after the declaration of air supremacy.¹⁴⁷

Although DIA estimates that over 50% of the command and control communications associated with the Iraqi national command authority was destroyed, Iraqi leadership remained in contact with military forces and civilian agencies.¹⁴⁸ The orchestration of the delaying actions by the RGFC divisions to hold coalition forces that allowed heavy

equipment to escape provides an example of the continuing control of the armed forces by Baghdad.

The attack of oil and electrical production was successful in collapsing the power production infrastructure. The availability of secondary local generators and the large stockpiles of oil products in theater made the effect militarily and politically negligible.¹⁴⁹ The Iraqi population in Baghdad and eastern Iraq was deprived of electrical power for several weeks. There were no attempts to overthrow the regime as a result of lack of electrical power.

The destruction of nuclear-biological-chemical facilities was an abject failure, largely due to poor intelligence and Iraqi deception. After the attacks Iraq was left with over 150,000 chemical weapons. The destruction of lines of communication was very successful, however ingenious engineering efforts and the sheer number of available transports kept Iraqi forces amply supplied up to the start of the ground war. Iraq had over 40,000 military trucks, 190,000 commercial vehicles and over 120,000 Kuwaiti vehicles. The same open terrain that facilitated air attack allowed vehicles to move off-road thus negating many of the effects of road destruction.¹⁵⁰ Strategic bombing certainly did not achieve the goals outlined in the Instant Thunder plan. Without achieving the military goals as described, it becomes apparent why facilitating the political objective was impossible.

Achievement or failure to accomplish the goals set out in the Instant Thunder plan is only relevant in the context of successful contribution to achievement of the political objective. Even if Instant Thunder had accomplished all goals, the test is in whether or not Iraq remained in Kuwait. In many respects Instant Thunder was the first true test of Warden's theories and the decisiveness of strategic bombing. Was Instant Thunder the

“proximate cause of a political entity accepting an enduring political settlement agreeable to all interested parties.” To examine that question in this context there are three areas to consider, isolating the Iraqi military and political leadership to reduce the ability to direct the conflict, attack of the industrial infrastructure to curtail military means, and introduction of hardships on the population so that their will to continue the conflict is extinguished.

In the first case the Iraqi command and control system simply proved too resilient to be completely disrupted. The targets that strategic bombing destroyed may have eliminated the high capacity communications channels between Baghdad and the front, but the remaining systems proved more than adequate to handle command and control needs. It bears noting that Iraq did not have sophisticated communications equipment for command and control system. It was a patchwork of commercial, military surplus and cast-off Russian equipment. This rudimentary structure was able to function to the level necessary to meet the needs in spite of massive destruction. The attack on the industrial infrastructure including oil and electrical production also proved futile. Even though the physical destruction desired was achieved it would have taken several months for the effects to become significant. The large stockpile of military equipment and oil as well as the availability of emergency electrical systems negated much of the impact. In the civilian population the loss of electrical power was easily bearable in the short term. Introducing hardships to the people of Iraq to have them lose the will to continue assumes that it was the regime was responsive to the will of the people. The harsh authoritarian rule of the Iraqi regime made complaints about the hardships unthinkable. Better to be miserable because of air strikes than dead for complaining. Instant Thunder weakened Iraq but was unable to

bring the nation to heel. Even with the addition of precision guided munitions, strategic bombing fell short of producing desired results.

Conclusion

An old country saying states, "The proof is in the pudding" meaning results count. After a 38 day air effort, Iraq still occupied Kuwait. The political constraints on strategic bombing were minimal until the civilian casualties in the Al Firidos bunker in Baghdad on 13 February 1991. The air planners were allocated all of the resources outlined in their plan. The terrain and climate were ideal to air attack. The Iraqi integrated air defense system (IADS) was poorly designed and very limited in its ability to detect and track incoming threats. In fact, the Iraqi IADS was oriented east (Iran) and west (Israel) to counter air threats from those traditional enemies.¹⁵¹ In spite of this permissive environment for strategic air attack, Saddam Hussein did not relinquish his hold on Kuwait until two days into the ground offensive. Air power undoubtedly contributed tremendously to the ease with which ground forces overcame Iraqi forces -- air power used to attack enemy forces, not the AT&T building in Baghdad.

The foregoing examples have illustrated a consistent pattern in the US Air Force understanding of history. In each case, Japan, Vietnam, and Iraq their interpretation of events constitutes a continuing effort to prove strategic bombing can be decisive independent of other armed forces. The next chapter provides an examination of the unifying threads between these historical cases and why strategic bombing in isolation is a fundamentally flawed strategy.

Conclusion

*"How far the idea of dispiriting a people can be advantageously carried is a function of most uncertain factors. Infliction of suffering on a people who can stand all that can be inflicted on them only makes the military problem more difficult by embittering them."*¹⁵²

Russell Weigley

In the preceding pages, air power theory and the concept of decisiveness have been examined. Three historical examples of strategic bombing were examined to determine if strategic bombing in isolation was the decisive military measure. In all cases strategic bombing contributed to the successful prosecution of the conflict but there is no evidence that its effects were adequate to win alone. Strategic air attack did not meet the definition of decisive use of military force -- *use of military force scaled to the value of the object to provide the proximate cause* [forces a decision] *for the timely acceptance of an (enduring) political settlement* [contrary to perceived national interests of the defeated belligerent] *by a political entity and is adequate for all involved parties.*

Strategic bombing is difficult to scale, if threats are insufficient to accomplish the ends, the choice is binary, destroy or not destroy. Timely acceptance of an enduring political settlement is where strategic bombing falls desperately short of the mark. There are certain commonalties in all three historical cases that illustrate why strategic bombing is seldom a decisive military action for achieving political objectives. The commonalties are the type of government involved, the nature of war and political constraints, physical versus psychological effects, and the time delay between action and effect.

Government

In all of the three historical examples, the governments were not responsive to the desires of the population. For strategic bombing to attack the will of the people in a dictatorship or oligarchy it must set the conditions for rebellion and overthrow of the government. The two ways to set conditions are to weaken the power of the government by decapitation, the killing of some or all of the leadership, or by increasing the hardship of the population to such a degree that resentment boils over into rebellion.

An idealized strategic bombing campaign attempts to do both in equal measures.

In the case of Japan this strategy failed because of Japanese culture. The idea of overthrowing the government led by the Emperor, a semi-divine figure, was unthinkable. The hardships caused by fire bombing and later the atomic bombs had little impact on the willingness of the Japanese people to challenge their government. In Hiroshima the reaction to the Emperor's recorded speech that ended the war was varied. Many felt great depression and sorrow for the Emperor for suffering the indignity of surrender. Some Japanese atomic casualties reviled him for surrendering, "Only a coward would back out now" and "I would rather die than be defeated."¹⁵³ These are hardly the reactions of a population whose will was devastated or whose suffering has driven them to rebel against the Emperor.

In Iraq strategic bombing failed because of the repressive nature of the ruling Ba'ath party. Coalition attempts at the decapitation of the Ba'ath party leadership and imposition of hardships on the population led nowhere. Instant Thunder, Warden's plan for strategic air attack, was designed to kill, overthrow or isolate Saddam Hussein and the leadership of the Ba'ath party.¹⁵⁴ General Dugan, the US Air Force chief of staff, stated

that, "Saddam is a one-man show. If for any reason he went away it is my judgment that those troops [in Kuwait] would all of sudden lose their legitimacy, and they would be back in Iraq in a matter of hours in disarray."¹⁵⁵ This strategy failed. Saddam Hussein artfully used multiple command bunkers, mobile command posts and his loyal forces to remain in control of the country. The minor uprisings staged by the Shi'ite and Kurdish minority in Iraq after hostilities ended were easily handled by security forces and the remaining elements of the Republican Guards Forces Command. These uprisings were by groups disaffected by the regime before the war who saw an opportunity to gain autonomy while Iraq's armed forces were weakened by the war. Strategic bombing did nothing to inspire these half-hearted attempts at rebellion.

The attempts to isolate the Ba'ath regime and inspire a popular rebellion were actually inhibited by strategic bombing. The destruction of telecommunications centers and power grids isolated the populace and prevented potential coup planners from coordinating nationwide efforts. The fact that Iraqi government security forces retained tactical communications and mobility allowed rapid reaction to potential trouble spots. The repressive nature of the regime and dire potential consequences of a failed rebellion caused the populace to remain passive spectators. Saddam's power rested securely on a political base that simply could not be destroyed by strategic bombing.¹⁵⁶

Against the Vietnamese strategic bombing was equally ineffective in overturning the communist government. The combination of intense ideological indoctrination under the strategy of "dau tranh"¹⁵⁷ and the already poor material status of the population gave little leverage to strategic attack. The LINEBACKER operations to some degree effected

the ability of the North Vietnamese government to continue conventional prosecution of the war, but had no effect on the willingness to continue the conflict.

The evidence indicates that strategic bombing is not effective against dictatorships or other forms of government not responsive to the will of the people. It is also not effective when the value of the political object exceeds the level of punishment air power can inflict. Could strategic bombing could potentially be effective against a democracy or other form of government that relies on the support of the population for legitimacy? The bombing of Britain by the German Luftwaffe in World War II provides some small insight into this theory. The British reaction to strategic bombing was not to rebel against the government and end the punishment. The bombing inspired a "passion for revenge."¹⁵⁸ There are many other factors at play in the air battle over Britain however the fact remains that strategic bombing of a "democratic" state also did not produce the results advanced by air power theorists. One can argue the value of the British political object, remaining a sovereign country, was far greater than the punishment the Luftwaffe could inflict.

Nature of War and Political Restraints

Strategic bombing advocates routinely advance the claim that bombing is effective when done without restraint. Undoubtedly that proposition is true to some degree. It does not however reflect the reality of the international relations. Clausewitz provides the maxim that, "War is an act of policy...[it is] never autonomous...always an instrument of policy."¹⁵⁹ If one accepts that idea, it follows that military force must be metered in a manner that achieves the political object without unnecessary loss of life or expenditure

of national treasure – scaled to the value of the object. There are rational and legal limits to the conduct of war. These limits are embodied in international treaties, law and culture.¹⁶⁰ The political nature of war in and of itself limits the ability of strategic bombing to have decisive effects except in two cases. The first case is when the dispute is very limited and the opponent has little at stake. A recent example is the cruise missile attack on Iraq in response to violations of air defense radar operating restrictions. Iraq's activity was a probe to test resolve. Saddam Hussein had little of value to lose and much to gain. The destruction of several air defense radar sites did not significantly affect the security of Iraq. US Air Forces in the region provide Iraq security from air attack as a result of enforcing the UN mandated no-fly zone. He complied after cruise missile attack because the value of the object was small. The second case where strategic attack can be decisive is absolute war where the total annihilation of a nation as a political entity is desired. Strategic bombing with nuclear weapons can achieve that goal over a period of time without assistance.

In other cases along the continuum of interstate conflict, strategic bombing will be handcuffed by political constraints as a result of the nature of war as an instrument of policy. The common complaint from airmen in Vietnam was about the political constraints on strategic bombing. These constraints were a result of the nature of the conflict. The risk of greater involvement by the Chinese and Russians naturally led to bombing constraints. Because of the indiscriminate nature of high explosives, the only safe way to avoid killing Chinese or Russian advisors was to control targeting. Lack of

political control of bombing could have led to increased involvement by the Russians and Chinese and perhaps spread the conflict to other parts of the world.

In Iraq, the bombing of the Al Firdos bunker in Baghdad caused the imposition of political restraints. The highly publicized death of Iraqi civilians in the bunker strained ties of an already fragile coalition of Arab and western nations. The restriction against bombing Baghdad was a political measure to help hold the coalition of Western and Arab states together.

In the case of Japan, the military leadership was motivated by the samurai spirit. Destruction of the nation was preferable to surrender. One can argue whether if the Allied naval blockade had not denied the military raw materials for armaments, any amount of bombing would have produced surrender. A fully armed and equipped Japanese defense force in fortified positions on the home islands may have provided a compelling reason for continued resistance to produce a more acceptable peace treaty.

The inherent relation of military force to attainment of political objects means that the use of military force will never be without political restraint. To argue that strategic bombing can only be successful when unrestrained makes bombing a flawed tool for achieving political purposes. Some advocates propose that the flexibility and surgical nature of strategic attack make it an ideal tool to operate within political constraints. Air attack is inherently inflexible. If threats of air attack are insufficient to produce desired results, air attack provides only a binary choice, destroy or don't destroy. The gradations of response are simply how much we choose to destroy. This hardly provides the political decisionmaker a range of options. The surgical nature of strategic air attack is

also a relative notion. A precision guided munition (PGM) is certainly much more precise than an unguided bomb. However, a five-hundred pound PGM will produce deadly effects in a two hundred meter radius and will level a typical two story building. In other words, if a five hundred pound bomb is dropped in the end zone of a football field the patrons in the seats at the other end zone will be killed or injured. The term minimal collateral damage does not mean innocent civilians or materiel will be undamaged. Even within political restraints strategic air attack is more akin to a meat cleaver than a scalpel.

Physical versus Psychological Effects

A targeteer can precisely predict the physical effects of a munition or combination of munitions on a target. Can the societal, political and psychological effects be as precisely calculated? Most air power theorists' view of society is mechanical. The mechanistic view holds that society is composed of completely interdependent parts. If one gear breaks, then the rest of the machine stops. The leadership is the central processing unit of the machine that controls the parts. Destroy or isolate the leadership and the machine stops. A more accurate view of modern society is an organic view with parts that are interdependent to some extent but also interchangeable to some degree. For example, destruction of the rail transportation system causes the increased use of roads and road vehicles. Destruction of the roads may lead to adoption of the horse as a cross country vehicle. The effect is a gradual degradation of the quality of life and ability to summon the comforts of 20th century civilization. Only by viewing a nation as a complex adaptive system can one begin to see that the notion of strategic paralysis by a strategic

bombing campaign is infeasible. Complex adaptive systems have a number of characteristics that make them very resilient to attack;

- Many interdependent agents interacting in a great many ways.
- Self organizing, systems unconsciously restructure.
- Adaptive systems learn from the environment and exploit whatever arises.
- Dynamic systems evolve and change over time
- Dominative systems, human systems, not only turn what happens to their advantage, they dominate the environment by creating advantages.¹⁶¹

The effect of these characteristics on strategic bombing is profound. Every attack after the first attack decreases in effect. The ability of a complex organism (society) to adapt to hostile conditions is enormous. The government disperses key industries and the population. Civil defense forces are organized and augmented. Active and passive air defense measures are implemented. The organism of society takes measures necessary for survival. Strategic bombing soon reaches the point of diminishing returns where targets struck multiple times are “re-rubbed,” and the strategic endstate still eludes air power. Ground forces are usually introduced at this point to finish the task and achieve the political objective.¹⁶²

The advent of precision guided munitions (PGMs) has captured the imagination of all air power advocates. This is the tool that they have waited for to properly implement strategic attack. The vision of the ACTS instruction in 1939 can now be realized. By precisely striking carefully selected targets in a nation's infrastructure, the nation's economy and will/ability to fight will collapse. Targeteers can describe the physical

effects expected from PGM attacks with great accuracy, what continues to elude even the best weapons expert is the psychological results of a PGM attack. Most air power campaign planners make the base assumption that the “lightning bolts from the sky” will intimidate and terrify the populace. As illustrated by the effects of the World War II bombing of Britain and the bombing of Vietnam, terror can rapidly be transformed into great hate and energy.

Nothing galvanizes human beings like the requirement for survival. Imagination and innovation reach new heights spurred by the need to survive. Air power planners fall into what Palmirini calls a “tunnel” in his book Inevitable Illusions.¹⁶³ They overlay their notion of what a single rational person would do when faced with a set of unpleasant circumstances. The difference between singular reactions and group reactions is the difference acknowledged by the formation of two social sciences; psychology -- the science of the individual, and sociology -- the science of the group. An individual faced with a situation will react in an entirely different manner than a group faced with the same situation. The difference is caused by the push and pull of interacting social pressures generated in a group. Some the commonly identified social pressures found in a group are the need to be accepted, peer pressure, and a desire for consensus before action.

Sociology also acknowledges the irrationality of some group behavior as a result of these pressures. Anthony Kellett in Combat Motivation talks of soldiers who willing die so the group can survive; hardly rational behavior for the individual.¹⁶⁴ The apparent intuitive effects of strategic attack on the will of a nation to continue to resist are one of Palmirini’s cognitive illusions. Our inability to rationally translate individual reactions

to a postulation of group/national reactions causes the tunnel. The air battle over Britain provides a classic example of a nation/group who suffers strategic bombing by the Germans yet gained *greater* national will to resist. This is hardly the result expected by the air power strategists in Berlin.

Sociologists have isolated two key effects of conflict on groups. First, the cohesion of a group is enhanced by the sense of a greater purpose that comes with strain or conflict. Second, shared hardship increases the unity of a group.¹⁶⁵

A conflict vastly simplifies the purposes of a nation. The nation focuses on winning or surviving the conflict. This purpose comes to dominate all others. In peacetime a nation is driven by a diversity of objectives, purposes and goals. Achieving national unity becomes problematic. However, during war when national survival is at stake, a strong enemy is a powerful unifying force. The multitude of singular purposes of the population are "swallowed up" in the dominant purpose of winning the conflict.¹⁶⁶

Shared hardship also increases group unity and builds bonds. The armed forces have used this sociological theory for years during training to build unit cohesion. Examples also abound in the civilian sector as a result of disasters. For example, the survivors of plane crashes, earthquakes and hurricanes feel a special bond because of the shared hardships. This feeling of unity and increased solidarity caused by shared hardship also occurs from strategic bombing of civilian targets. In effect a bombing raid is no different from a natural disaster.

Finally, theorists and writers over the ages have generally acknowledged that over all war is a moral affair. Clausewitz compares it to a duel, other theorists also use

analogies from sports. In all analogies, victory is about character and will. All things being equal, the participant with the moral strength will be victorious. For the effects of victory to be lasting, the defeated party must feel that he has been defeated. The motivation and moral underpinning of the will to initiate and continue the conflict must be extinguished or diverted to other national challenges. History illustrates that this usually happens when a nation's armed forces are defeated and the country is occupied. Post World War II Japan and Germany provide extremely compelling examples. Iraq illustrates the counterpoint. Because its transient nature, strategic air attack lacks the moral force to undermine deeply held beliefs. Long term commitment of ground forces has been the most successful tool in achieving enduring political agreements.

As the foregoing indicates, strategic bombing cannot achieve either the physical or psychological effects desired by its advocates.

Time Delay Between Action and Effects

Strategic bombing is based on two premises. First, that the bombers can access the target set, and second, that the destruction of these targets will have certain effects. If either premise fails then the whole proposition becomes suspect. In both cases, attack on the will or attack on the means, there is an inherent time delay. The desired psychological effects caused by destruction of population centers can only be realized as the general population becomes aware of the destruction. The physical effects on the ability of the armed forces to continue to resist become apparent only after resident stockpiles are exhausted. The destruction of oil fields or weapons factories begins to take effect as the attrition of combat exhausts on hand stocks. The measurement of the time delay becomes

problematic as one examines Bond's criteria for victory. Bond states that victory requires acknowledgment by the vanquished and timed to match battlefield circumstances.¹⁶⁷ The imprecise effects and time delay intrinsic to strategic bombing makes decision by bombing alone impractical.

There are two equally negative results that come from the time delay. First, bombing continues far beyond what was actually necessary to set the conditions for military surrender. Second, the nation continues to resist with available stockpiles until allies join the conflict. Because of the time delay from attack to effects, strategic bombing may continue long after industry and population centers are devastated simply because effects are not visible. The continued bombing of Japan is illustrative. This can be perceived by other nations as inhumane and drive them either to censure the attacking nation or in the worst case ally themselves with the victim -- further complicating the situation.

The time delay also allows nations to muster support for their cause. By relying on stockpiles of materials available to combat forces a nation under attack can delay surrender. The delay provides time to conduct diplomatic efforts and recruit allies. Because the decision by military force was not timely, nations have the opportunity to reverse the course of the war.

If Strategic Bombing is Ineffective - Why Continue?

The United States continues to endorse strategic bombing for two fundamental reasons. The first is political. The elected officials of the United States chose to ignore Clausewitz and his injunction

...kind-hearted people might of course think there was some ingenious way to disarm or defeat an enemy without too much bloodshed...pleasant as it sounds it is a fallacy that must be exposed; war is a dangerous business that the mistakes which come from kindness are the very worst.¹⁶⁸

The use of strategic bombing appeals to US politicians because it appears to offer an efficient and fairly bloodless way to advance US interests. Neither is true, but deliberate obfuscation by "journalistic bombardiers" over the death, destruction and actual achievements of strategic bombing continue to make this the strategy of choice. The commitment of ground or naval forces is just that -- a commitment -- a choice the government of the United States is increasingly unwilling to make. The deployment of ground forces to Bosnia has met increasing resistance in the US Congress.¹⁶⁹ Yet Congress endorsed the air attack to assist the Croatian ground offensive.

The second reason is more problematic, strategic bombing remains a key element in US military strategy because it serves Air Force bureaucratic interests. As Graham Allison outlines in his paper on organizational response to crisis, the survival of the organization tempers all courses of action proposed.¹⁷⁰ Without the concept of strategic bombing the existence of the US Air Force as an institution can be questioned. If strategic bombing was not considered a viable strategy the Army and Navy could easily absorb the components of the Air Force without sacrificing capability. Laced throughout Air Force Doctrine Document 1-1, 1997 is the theme that strategic attack is the only viable mission for air power, "Our service is able to rapidly project power over global distances and maintain a virtually indefinite "presence" over an adversary...air and space power does now have the potential to be the dominant and, at times the decisive element

of combat...[strategic attack] provides the theater commander with the option of creating decisive, far reaching effects...while avoiding loss of life and expenditure of treasure.”¹⁷¹

The publication of the Gulf War Air Power Survey (GWAPS) was limited by the US Air Staff's fear that it reflected some shortcomings of air power in the Gulf War. This fear illustrates the disturbing tendency of the Air Staff to regard all examination of air power in terms of the never-ending budget battle with the other services.¹⁷² As the US Air Force continues to strive to prove air power decisive on the battlefield one can only wonder where the pursuit will lead in terms of national strategy and composition of the armed forces. As Tilford states, “when historians promote a version of history designed to support a particular ideological or political bias their dishonesty betrays the profession...when [military leaders] adhere to myths to support institutional interests they run risks with potentially greater and more violent consequences.”¹⁷³ The historical record indicates that strategic bombing requires some other component to exploit the temporary paralysis it causes. That component can be ground or naval forces or diplomatic proposals. Without that other element to exploit bombings temporary effects, “An air concentration by itself is as incapable of achieving a decision as a concentration on land can if operating alone.”¹⁷⁴

ENDNOTES

¹ Eric Hoffer, The True Believer (Harper and Row, New York: 1951), 20.

² Conrad C. Crane, The Evolution of Strategic Bombing of Urban Areas (A dissertation, Stanford University, CA: 1990), 67.

³ Ibid., 71.

⁴ Giulio Douhet, Command of the Air (Washington DC: Office of Air Force History, 1983), 72.

⁵ Carl von Clausewitz, On War, Translated and edited by Michael Howard and Peter Paret. (Princeton, N.J.: Princeton University Press:1976), 81.

⁶ Thomas A. Kearney and Eliot A. Cohen, Gulf War Air Power Summary Report, (Washington D.C., Government Printing Office: 1993), 69.

⁷ Brian Bond, The Pursuit of Victory (Oxford University Press, NY:1996), 13.

⁸ Douhet, Command of the Air, 9.

⁹ F.O. Mischke, Is Bombing Decisive ? (London: George Allen & Unwin LTD, 1945), 9-10.

¹⁰ John L. Frisbee, ed. Makers of the United States Air Force (Washington D.C.: GPO, 1987), 145.

¹¹ Websters New Collegiate Dictionary, (Springfield MA., Merriam and Co.: 1975), 890.

¹² Clausewitz, On War, 81.

¹³ General Carl Spaatz, "If We Should Ever Have to Fight Again", Life, 5 July 1948, 35.

¹⁴ Mark Clodfelter, The Limits of Air Power (New York: The Free Press, 1989), 175.

¹⁵ Kearney and Cohen, Gulf War Air Power Summary, 242.

¹⁶ Colonel John A. Warden, on PBS series Air Power, "Desert Storm".

¹⁷ Douhet, Command of the Air, 9.

¹⁸ John A. Warden III, "The Enemy as a System", (Maxwell AFB, AL: reprint from the Air Command and Staff College, 1993, excerpts from, Concepts in Airpower for the Campaign Planner), 1.

¹⁹ Douhet, Command of the Air, 10.

²⁰ Ibid., 95.

²¹ Ibid., 103.

²² Ibid., 72.

²³ Mischke, Is Bombing Decisive ?, 17.

²⁴ Ibid., 10.

²⁵ Edward Warner, "Douhet, Mitchell, Seversky: Theories of Air Warfare", in Makers of Modern Strategy, ed. Edward Mead Earle (Princeton, N.J.: Princeton University Press, 1973), 498.

²⁶ Eric Larrabee, Commander in Chief - Franklin Delano Roosevelt, His Lieutenants, and Their War (Harper and Row, New York: 1987), 167. (Larrabee describes Mitchell's deliberate violation of the agreed upon rules of engagement for the test of aerial bombing on the captured German destroyer *Ostfriesland* in 1921. He used 1000 pound bombs versus the 600 pound bombs specified and continued repeated low level attacks against the defenseless ship until it finally went under. No attempt was made to objectively analyze effects and determine what actually caused the ship to sink.)

²⁷ Warner, "Douhet, Mitchell, Seversky: Theories of Air Warfare", in Makers of Modern Strategy, 499.

²⁸ Phillip S. Melinger, American Airpower Biography, (Maxwell AFB, AL.: Air University Press, July 1995), 6. (An excellent, detailed account of the courtmartial can be found in Trial of Faith: The Dissent and Courtmartial of Billy Mitchell, by Michael Grumelli, 1991.)

²⁹ Herman Hataway and Archer Jones, How the North Won - A Military History of the Civil War (University of Illinois Press, Urbana and Chicago, 1991), 642. Sherman describes the intent of his march through Atlanta to the sea as making "(the South's) inhabitants feel that war and individual ruin are synonymous terms."

³⁰ Crane, The Evolution of American Strategic Bombing of Urban Areas, 56-58.

³¹ Robert A. Pape Jr., Bombing to Win (Cornell University Press, NJ: 1996), 94.

- ³² Crane, The Evolution of American Strategic Bombing of Urban Areas, 59.
- ³³ John A. Warden, The Air Campaign -Planning for Combat (National Defense University Press, Washington DC: 1988), 3-12.
- ³⁴ Ibid., 13.
- ³⁵ Ibid., 97
- ³⁶ Ibid., 102-104
- ³⁷ Warden "The Enemy as a System", 1-10.
- ³⁸ Kurt A. Cichowski, Doctrine Matures Through the Storm - An Analysis of AFM 1-1, (Air University, Maxwell AFB, AL, June 1993), 4.
- ³⁹ Ibid., 5.
- ⁴⁰ Ibid., 7.
- ⁴¹ Ibid., 8.
- ⁴² Ibid, 9.
- ⁴³ The United States Strategic Bombing Survey(s) for Germany and Japan include recommendations for an independent air force as well conclusions that support the airmen's claims of the decisive nature of strategic bombing in World War II.
- ⁴⁴ Cichowski, Doctrine Matures Through the Storm - An Analysis of AFM 1-1, 11.
- ⁴⁵ Stanley Karnow, Vietnam, A History (Penguin Books, New York: 1983), 41.
- ⁴⁶ Mark Clodfelter, The Limits of Air Power, 197.
- ⁴⁷ Air Force Manual 1-1, Air Force Basic Doctrine (HQAFDC, Maxwell AFB, AL:1997), Chapter 2 page 1.
- ⁴⁸ Michael S. Sherry, The Rise of American Air Power: The Creation of Armageddon (New Haven: Yale University Press, 1987), 58.
- ⁴⁹ Robert A.Pape Jr., Bombing to Win (Cornell University Press, NJ: 1996), 65.

⁵⁰ Larrabee, Commander in Chief - Franklin Delano Roosevelt, His Lieutenants, and Their War, 167.

⁵¹ Webster's New Collegiate Dictionary, G.&C. Merriam and Co., Springfield, MA: 1975, 293.

⁵² Alfred Thayer Mahan, The Influence of Seapower on History 1600-1783 (New York: Hill and Wang, 1957 and 1890), 1.

⁵³ Donald Kagan, On the Origins of War and the Preservation of Peace (Anchor Books, Doubleday, New York, London: 1996), 8.

⁵⁴ Clausewitz, On War., 92.

⁵⁵ Sir Julian S. Corbett, Some Principles of Maritime Strategy, (Naval Institute Press, Annapolis, MD: 1988), 45.

⁵⁶ Russell F. Weigley, The Age of Battles, (Indiana University Press, Bloomington, IN: 1991), xii.

⁵⁷ Bruce W. Menning., "An Operator/Planners Introduction to Operational Art", undated, unpublished manuscript used in the Command and General Staff College, Department of Joint and Combined Operations, 2.

⁵⁸ Ibid., 4.

⁵⁹ Robert J.C. Butow, Japan's Decision to Surrender, (Stanford University Press, Stanford, CA.:1954), 176. This excerpt from the Japanese Emperor's speech to his cabinet illustrates the unpleasant decision to accept the Allied surrender terms. The only condition the Japanese requested was that the Imperial system of government remain. Although the American government publicly did not recognize that position, the return letter to the Japanese implied that the Emperor would not be removed if he complied with General MacArthur's directives as Military Governor.

⁶⁰ H.P. Willmott, The Barrier and the Javelin, (Naval Institute Press, Annapolis, MD:1983), 519.

⁶¹ Clausewitz, On War., 250.

⁶² Ibid., 86-87.

⁶³ Brian Bond, The Pursuit of Victory (Oxford University Press, NY:1996), 5.

⁶⁴ BBC Interview with Prime Minister Thatcher, July 1991.

⁶⁵ Sun Tzu, The Art of War, translated by James Clavell (Random House Publishing, New York: 1992), 26.

⁶⁶ Weigley, The Age of Battles, xiii.

⁶⁷ Quoted in Russell Weigley's, "American Strategy from Its Beginnings Through the First World War", Makers of Modern Strategy, (Random House, New York: 1990), 442.

⁶⁸ John A. Warden III, The Air Campaign - Planning for Combat, (National Defense University Press, Fort McNair, Washington, D.C. : 1988), 162.

⁶⁹ Air Force Doctrine Document 1, Air Force Basic Doctrine, Maxwell AFB: September 1997, 46-60.

⁷⁰ Joint Forces Air Component Commander (JFACC) Primer, HQ USAF/XOXD, Washington, D.C.: February 1994, 24.

⁷¹ Air Vice Marshal Tony Mason, RAF (ret), "Characteristics of Aerospace Power" a paper presented at a conference on "Air Power and Space - Future Perspectives, Westminster, London, 12-13 September 1996, 10.

⁷² Weigley, The Age of Battles, xii.

⁷³ Herbert Feis, The Atomic Bomb and the End of World War II, (Princeton University Press, Princeton, NJ: 1966), 38. Truman apparently did not understand the difference between atomic munitions and the powerful kinds of artillery fired in earlier wars. He confided in a later interview that after his initial briefings on the atomic bomb in his mind he saw a comparison between the shells "Big Bertha" bombarded Paris with in World War I and the use of the atom bombs.

⁷⁴ Wilmott, The Barrier and the Javelin, 9-10.

⁷⁵ Ibid., 10-11.

⁷⁶ Louis Morton, The Fall of the Philippines, (Office of the Chief of Military History, Washington DC: 1953), 52.

⁷⁷ Wilmott, Barrier and the Javelin, 10.

⁷⁸ Pape, Bombing to Win, 109-110.

⁷⁹ Butow, Japan's Decision to Surrender, 12.

- ⁸⁰ Ibid., 11.
- ⁸¹ Pape, Bombing to Win, 100.
- ⁸² Ibid., 101.
- ⁸³ Butow, Japan's Decision to Surrender, 42.
- ⁸⁴ Ibid., 97.
- ⁸⁵ Morton, The Fall of the Philippines, 54-55.
- ⁸⁶ Butow, Japan's Decision to Surrender, 154,158.
- ⁸⁷ Ibid., Appendix C, 243.
- ⁸⁸ Feis, The Atomic Bomb and the End of World War II, 107.
- ⁸⁹ Ibid.,3.
- ⁹⁰ Ibid.,11.
- ⁹¹ Barton J. Bernstein, "A Postwar Myth: 500,000 Lives Saved," Bulletin of the Atomic Scientists, June/July 1986, 39.
- ⁹² Feis, The Atomic Bomb and the End of World War II, 13.
- ⁹³ Ibid., 26.
- ⁹⁴ Henry L. Stimson, "The Decision to Use the Atomic Bomb", Harpers Magazine, February 1947.
- ⁹⁵ Butow, The Japanese Decision to Surrender, 151.
- ⁹⁶ Ibid., 152.
- ⁹⁷ Feis, The Atomic Bomb and the End of World War II, 186. The Emperor told six members of the Supreme Council that they should not limit their efforts to preparing for an invasion of Japan. He wanted them to seek a negotiated peace and end the war.
- ⁹⁸ Butow, The Japanese Decision to Surrender, 174.
- ⁹⁹ Ibid.,176.

¹⁰⁰ Ibid., 178.

¹⁰¹ Ibid., 178.

¹⁰² United States Strategic Bombing Survey (USSBS)(Pacific War), (Washington DC, 1 July 1946, reprinted by Air University Press, Maxwell AFB, AL: 1987), 82.

¹⁰³ USSBS, 100-101.

¹⁰⁴ Butow, Japan's Decision to Surrender, 47.

¹⁰⁵ Ibid., 50-51.

¹⁰⁶ USSBS, 84.

¹⁰⁷ USSBS, 19.

¹⁰⁸ USSBS, 18.

¹⁰⁹ USSBS., 95.

¹¹⁰ Ibid.

¹¹¹ USSBS, 106.

¹¹² Joseph R. Cerami, "Presidential Decisionmaking and Vietnam: Lessons for Strategist", Parameters, (Carlisle Barracks, PA, Winter 96-97), 68.

¹¹³ Ibid. 69-70.

¹¹⁴ Mao's conduct of war progresses in 3 phases, Strategic Defense/Tactical Defense, Strategic Defense/Tactical Offense, and Strategic Offense/Tactical Offense. Each phase calls for a differing mix of guerilla and regular forces. The final phase calls for a conventional attack to destroy the enemy and achieve victory.

¹¹⁵ Clodfelter, The Limits of Air Power, 147, 149.

¹¹⁶ Douglas Kinnard, President Eisenhower and Strategy Management (Pergamon-Brassey, International Defense Publishers, Inc. , Washington: 1989), 10.

¹¹⁷ Clodfelter, The Limits of Airpower, 159.

¹¹⁸ Karl J. Eschman, Linebacker, The Untold Story of the Air Raids Over North Vietnam, (New York, Ivy Books: 1989), 54, 56.

¹¹⁹ Karnow, Vietnam, 648.

¹²⁰ Eschman, Linebacker, 75.

¹²¹ Ibid., 211-213.

¹²² Clodfelter, Limits of Air Power, 198.

¹²³ Karnow, Vietnam, 654.

¹²⁴ Earl H. Tilford, Jr., Setup, What the Air Force Did In Vietnam and Why, (Maxwell AFB, AL, Air University Press: 1991), 264.

¹²⁵ Karnow, Vietnam, 653.

¹²⁶ Eschman, Linebacker, 213.

¹²⁷ Karnow, Vietnam, 639.

¹²⁸ Darrel D. Whitcomb, "Tonnage and Technology: Air Power on the Ho Chi Minh Trail", Air Power History, Spring 1997, 20.

¹²⁹ Abraham Maslow, from Micheal Moncur's Quotes Collection, <http://www.starlingtech.com/quotes>.

¹³⁰ Paul Walker, "U.S. Bombing- The Myth of Surgical Bombing in the Gulf War", <http://deoxy.org/wc/wc-myth.htm>, 15 January 1997, 2.

¹³¹ Colin Powell, My American Journey (New York, Random House: 1995), 497.

¹³² Michael Gordon and General Bernard E. Trainor, The Generals' War (New York, Little, Brown and Co.: 1995), 7.

¹³³ U.S. News and World Report, Triumph Without Victory (New York, Random House: 1992), 179, 181.

¹³⁴ Gordon and Trainor, The Generals' War, 187.

¹³⁵ Government Accounting Office, "Operation Desert Storm: Evaluation of the Air Campaign", Washington DC, Letter Report 06/12/97, GAO/NSIAD-97-134, Appendix 1 Background, 1.

¹³⁶ Thomas A. Kearney and Eliot A. Cohen, Gulf War Air Power Survey Summary Report(GWAPS), (Washington DC, GPO: 1993), 9-10.

¹³⁷ Powell, My American Journey, 472.

¹³⁸ General Norman H. Schwarzkopf and Peter Petrie, It Doesn't Take A Hero, (Bantam Books, New York: 1992), 310.

¹³⁹ Ibid., 316

¹⁴⁰ Ibid., 320.

¹⁴¹ Powell, My American Journey, 497.

¹⁴² Kearney and Cohen, GWAPS, 36.

¹⁴³ Gordon and Trainor, The Generals' War, 179-180.

¹⁴⁴ Kearney and Cohen , GWAPS, 37-38.

¹⁴⁵ Edward C. Mann, Thunder and Lightning -Desert Storm Air Power Debates (Maxwell AFB, AL, Air University Press: 1995), xv.

¹⁴⁶ Websters Dictionary, 582

¹⁴⁷ GAO/NSIAD-97-134 report, App III 9.2.1

¹⁴⁸ Ibid., App III 9.2.2

¹⁴⁹ Ibid., App III 9.2.3

¹⁵⁰ Ibid., App III 9.2.6

¹⁵¹ GAO/NSIAD-97-134, Letter 5.5.3.

¹⁵² Weigley, American Strategy from the Beginnings through World War II, 440.

¹⁵³ Peter Wyden, Day One - Before Hiroshima and After, (New York, Simon and Schuster: 1984), 308-310.

¹⁵⁴ Pape, Bombing to Win, 221.

¹⁵⁵ "US War Plan: Air Strikes to Topple Hussein Regime", Aviation Week and Space Technology, September 24, 1990, 16-18.

¹⁵⁶ Pape, Bombing to Win, 236.

¹⁵⁷ Douglas Pike, PAVN (Novato, CA.:Presidio Press, 1986), 220.

¹⁵⁸ Mischke, Is Bombing Decisive, 25.

¹⁵⁹ Clausewitz, On War, 87-88.

¹⁶⁰ Richard Swain, Lucky War, Third Army in Desert Storm (US Command and General Staff College Press, Fort Leavenworth, Kansas: 1994), 183.

¹⁶¹ James J. Schneider, lecture notes for the Army Operational Arts and Studies Fellowship, 1997, on the nature of complex adaptive systems as described by complexity theory.

¹⁶² Swain, Lucky War, 183-184.

¹⁶³ Massimo Piatelli-Palmarini, Inevitable Illusions, (New York, John Wiley and Sons, Inc.:1997), 18.

¹⁶⁴ Anthony Kellet, Combat Motivation, (Boston: Kluwer Publishing, 1982), 46.

¹⁶⁵ Kellet, Combat Motivation, 45.

¹⁶⁶ Kenneth E. Boulding, Conflict and Defense - A General Theory, (New York, Harper & Row: 1974), 160-161.

¹⁶⁷ Bond, The Pursuit of Victory, 5.

¹⁶⁸ Carl Von Clausewitz, On War, 75.

¹⁶⁹ Senate Joint Resolution 44, December 29, 1995, Section 2, paragraph a. states that "Notwithstanding the reservations [of the Senate] expressed about President Clinton's decision to deploy United States Armed force to Bosnia and Herzegovina...

¹⁷⁰ Graham Allison, Conceptual Models and the Cuban Missile Crisis, American Political Science Review, September 1969, 18, 19. Allison describes the Organizational Process model for determining development of government policy using the Cuban missile crisis as a backdrop. In his writing he describes the organizational model as more concerned with maintaining organizational viability than reaching sound policy decisions,

“central among organizational constraints...is organizational health normally defined in terms of bodies assigned and dollars appropriated.”

¹⁷¹ AFM 1-1, Air Force Basic Doctrine, (OPR: HQ AFDC/DR, September 1997), 32, 41.

¹⁷² Daniel T. Kuehl, Revolution in Warfare ? Air Power in the Persian Gulf,” Survival, London, Autumn 1997, 178-179. This is a review of the Thomas Kearney and Eliot Cohen book by the same title.

¹⁷³ Raymond W. Leonard, “Learning from History: Linebacker II and US Air Force Doctrine”, The Journal of Military History, April 1994, 285.

¹⁷⁴ Mischke, Is Bombing Decisive, 21.